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DIESEL RAILWAY TRACTION

The May issue of this RAILWAY GAZETTE *Publication, illustrating and describing developments in Diesel Railway Traction, will be ready on May 1, price 2s.*

The Official *Price 25s.*

HISTORY
OF THE
BRITISH RAILWAYS
DURING THE WAR
1939-45

by R. BELL, C.B.E.

with a foreword by Sir William Wood,
President, London Midland & Scottish Railway

THE RAILWAY GAZETTE
33, TOTHILL STREET, WESTMINSTER, S.W.1

Bank Holidays and Travel Discomfort

IT is now rather more than 18 months ago since, in our September 7, 1945, issue, we last suggested that Lubbock's Bank Holidays' Act, which was passed in 1871, had now rather outlived its usefulness, and that Bank Holidays had become a nuisance. In recent times, the health of the people has been catered for generously by the provision of paid holidays, and more than 15 million insured workers now have holidays-with-pay agreements. The outstanding need of the moment is not more holidays, but more work, and that condition is likely to continue for some time. In *The Spectator* of April 18, a letter was published from Mr. Oliver H. Lawn, suggesting that Bank Holidays are the kernel of the "staggering" problem, and that, as it is impractical to maintain the present Bank Holiday arangements and increase all services, including transport and catering, to meet the abnormal requirements, the alternative would seem to be to "stagger" Bank Holidays on a local or type-of-work basis, or abolish them altogether.

* * * *

Mr. Owen Glynne Roberts

The death of Mr. Owen Glynne Roberts, which is recorded elsewhere in this issue, will be regretted by many who remember the shrewd advice and kindly acts which were characteristic of him during his tenure of office as Secretary of the London Midland & Scottish Railway Company, from which he retired on December 31, 1940. He had occupied that position for twelve years, and had coupled with it those of Assistant to the President and Secretary of the Executive Committee of the company. He was a very experienced officer, and although he always avoided the limelight, for a quarter of a century he had been one of those powers behind the throne that is occasionally found in commercial undertakings and Government departments. To have had the confidence and been in the inner counsels of such a succession of railway Chairmen and General Managers of such different characteristics and temperaments as Sir Thomas Williams, Sir Arthur Watson, Mr. H. G. Burgess, Sir Guy Granet, and Lord Stamp, and to have retained relatively the same position, showed that Mr. Glynne Roberts had qualities quite out of the ordinary.

* * * *

Mr. F. H. D. Page

The Great Western Railway has long tended to a somewhat conservative tradition in signalling and to remain faithful to established methods. As in the case of the working out and general adoption of its automatic train control, however, it has recognised the need for a progressive approach to operating problems and applying new ideas to them. During the term of office of Mr. F. H. D. Page, who has just retired from the position of Signal & Telegraph Engineer, and of whom a portrait and biography appear on another page, the same general policy was pursued. With the excellent record of the G.W.R. of freedom from serious accident, we see no practical justification for calling it in question. If, however, principles of working have changed but little, improvements in the details of equipment have received constant attention, and the latest designs of signalling and telecommunications apparatus have found application at many places. By the time Mr. Page assumed control of the Signal & Telegraph Department, the probability of war was realised, and in preparing for it, and, later, in meeting the imperative need for increasing the carrying capacity of various routes, he was responsible for planning and carrying out an extensive programme which played a part in bringing the nation successfully through those dark days.

* * * *

Chambers of Commerce on Government Policy

The Association of British Chambers of Commerce has produced a two-year emergency plan, copies of which have been sent to the Prime Minister, the President of the Board of Trade, and the Chancellor of the Exchequer. The Association strongly urges that nationalisation schemes should be deferred, and that immediate steps should be taken to increase coal and steel output, electric power-station capacity, railway locomotives and equipment and transport facilities generally, and farming appliances. It also urges that the coal target for the current year should be increased to 220,000,000 tons,

including the purchase of 10 to 15 million tons of coal from overseas for delivery in the next six months. The abolition of unessential controls and licences and the reduction of "swollen staffs of certain Government Departments" is also advocated, and Government guidance is sought in a review of policy governing wage rates to assure a basic wage.

* * * *

Central London Assented Stock and Transport Bill

Glyn Mills & Company were appointed trustees to secure the Central London Assented stock under the provisions of the London Passenger Transport Act, 1933. There is now outstanding £2,811,839 nominal of the stock, which is entitled to 4 per cent. interest per annum, and as security Glyn Mills & Company hold £2,605,698 L.P.T.B. "C" stock. As trustees they have considered the position which may arise as a result of the passage of the Transport Bill, and have submitted their views to the Minister of Transport. After the exchange of stocks under the Bill, they will hold British Transport stock on the same trusts as the "C" stock at present. If interest on the British Transport stock is not sufficient, they can call on the British Transport Commission to make up the guaranteed rate of 4 per cent. per annum on Central London Assented stock. On redemption of British Transport stock, holders of Central London Assented stock will receive the redemption monies, and (assuming the British Transport stock is issued at par) this will provide about £62 5s. cash per each £100.

* * * *

Merger of the Mechanicals and Automobiles

Early last year it became known that the Institution of Mechanical Engineers and the Institution of Automobile Engineers contemplated amalgamation, and that an application for the necessary powers had been made to the Privy Council. The necessary authority now has been given and the appointed day was April 13 last. Throughout the negotiations it has been kept in mind that mechanical, including automobile, engineers should have their interests promoted by one powerful institution, and that the technical education and practical training of engineering aspirants would be fostered better by an amalgamation of engineering institutions which would provide a recognised national qualification in place of a specified number of sectional qualifications. This merger takes place in the year during which the Institution of Mechanical Engineers celebrates its centenary. It was founded in 1847, and George Stephenson was the first President; it was granted a Royal Charter in 1930. The Institution of Automobile Engineers was founded in 1906, and the first President was Colonel R. E. B. Crompton; it received its Royal Charter in 1938.

* * * *

Argentine Railway Sales Scheme

In our March 7 issue, we gave the broad details of the agreement which had been reached for the sale of the British-owned Argentine railways to the Argentine Government. The agreed price is £135,000,000 for the railways, plus £14,500,000 for the ancillary undertakings. It is now announced that the boards of the companies concerned have decided that the scheme embodying the terms of the allocation of the proceeds of sale among the holders of the loan and share capital of the various companies shall be referred to an independent tribunal. Sir Andrew Duncan, M.P., is to act as Chairman of this panel, and Sir David Maxwell Fyfe, K.C., M.P., and Mr. Gilbert D. Shepherd, F.C.A. (President of the Institute of Chartered Accountants) have agreed to serve with him. Progress is being made in the drafting of the scheme, and the proposals are expected to be put before the panel shortly. As soon as the panel's consideration of the proposals has been concluded, the figures of the allocation which it considers fair and equitable will be published.

* * * *

British Railway Investments in Uruguay

Generally, there was an improvement in the return on British investments in Uruguay in 1945. Statistics compiled by *The South American Journal* give £43,661,918 as the total British capital invested in that country in 1946, and £1,307,938, or 3 per cent., as the interest received on it. The amount of capital receiving no interest was £15,943,341. The rate of interest was 0·1 per cent. more than that received in 1945, when £16,000,372 of capital was unremunerated. The amount of British capital invested in railways in Uruguay is returned at £14,513,145, and last year £76,731, or 0·7 per cent., was paid in interest, which compared with £69,888, or 0·4 per cent., for 1945. On the other hand, 89·1 per cent., or £12,943,341 of the total capital received no interest at all. Not since 1935 has the railway group received interest amounting to 1 per cent.

* * * *

State Purchase of Rhodesia Railways

The Government of Southern Rhodesia has agreed provisionally with the Rhodesia Railways Trust, which owns the £500,000 share capital of Rhodesia Railways, to acquire these shares for £3,150,000. The agreement is intended to operate as from March 31 this year. It will be recalled that, as stated in our May 3, 1946, issue, the Secretary of State for the Dominions in June, 1945, appointed Sir Harold Howitt as Commissioner to advise whether it would be in the interests of Southern Rhodesia, Northern Rhodesia, and the Bechuanaland Protectorate for the equity in Rhodesia Railways Limited to be acquired jointly by the Governments of Southern Rhodesia, Northern Rhodesia, and the Bechuanaland Protectorate. In his report, which we dealt with at length in our June 21, 1946, issue, Sir Harold Howitt concluded that the Government ownership of these railways was bound to come, but he felt that that time had not yet arrived; he suggested that the question be deferred at least five years.

* * * *

Fuel Economy Measures in India

The fuel economy campaign in India is being extended and increased in intensity each year. Trip fuel control has been introduced, the actual consumption of a locomotive on any one trip being checked against a definite ration. For stationary boilers and shunting engines, alternative fuels, a mixture of coal and cinders, and scrap wooden sleepers are being used. To prevent thefts and pilfering, additional watchmen have been appointed, and better lighting, walls, and fences have been provided in shed areas. Lagging of boilers and steam piping of stationary plants in sheds, increased use of water softening, and trials with different kinds of coal to decide the most suitable variety for a particular service, are other measures that are being extended. Very frequently, however, the desired results have not been achieved, owing to the necessity for accepting unfamiliar and often unsuitable grades, qualities, and sizes of coal, a handicap by no means confined to India. Nevertheless, substantial savings have been effected, as is proved by the fact that against increases in ton-mileages of passenger and goods services of 13 and 3 per cent. respectively in a recent year—as compared with the previous one—total fuel consumption rose by only 3·3 per cent.

* * * *

Costly Concrete Maintenance

Some disquieting facts concerning concrete were disclosed in a report on methods of improving the strength, durability, and wear resistance of concrete, presented by a sub-committee to the 1946 annual meeting of the American Railway Bridge & Building Association. Remarking that concrete originally was "thought to be practically indestructible," the report disclosed that one large railway estimates that it has spent $3,000,000 in the past five years in repairing disintegrated concrete, and that it expects to spend another $1,000,000 on similar repair work in the next five years. A second railway has spent $300,000 in one city alone in repairing concrete structures that formed part of a "grade separation" plan of substituting bridges for level crossings. Perhaps the most disturbing discovery is that some concrete, set "with rule-of-thumb methods by unskilled workmen in unfavourable locations," has outlasted concrete placed more recently "under present-day rigid specifications." It is recognised that the fault may be with the materials of which the concrete is composed, and that there are almost innumerable opportunities for something to go wrong while the concrete is being mixed, placed, and weathered. The suggestion was advanced that concrete specifications should lay down, not merely a definite strength, but a definite life; but as the life probably would be at least 50 years, enforcement of the latter guarantee is hardly practicable.

Railway Results for 1946

THE Government White Paper* dealing with the financial results of the operation of the controlled railway companies, joint lines, and the L.P.T.B. during 1946, is a little more detailed than in previous years. The outstanding point is that the net revenue of the pool was only £32,182,000, as compared with £62,547,000 earned in 1945 and the sum of £43,469,000, which is the aggregate of the fixed annual sums payable by the Government to the controlled undertakings under the railway control agreement.

Thus, for the first time since the railways came under control in 1939, their net revenue will have to be met in part by the Government out of the £195,277,000 total surplus for the previous five years, instead of its providing a welcome profit for the national exchequer. The decline of £30,365,000 in the net revenue for 1946 compared with 1945, is due mainly to a decrease in receipts of £23,217,000 compared with 1945, and an increase in expenditure of £8,232,000. On the other hand, the deficit in the net revenue resulting from the operation of ancillary businesses (such as steamboats, docks, hotels, collection and delivery services) and rents, interest, and other miscellaneous items was £3,268,000, an improvement of £1,084,000 compared with the previous year. Thus, the total net revenue of the pool for 1946 was £32,182,000, or £30,365,000 less than for 1945.

The accompanying statement shows the results of the Railway Control Account since the second financial arrangement became operative in January, 1941, and it is worthy of note that after taking into account the fact that net receipts in 1946 were £11,287,000 below the fixed annual sums payable by the Government, the operation of the railways has yielded a profit of £183,990,000 to the Exchequer in the last six years.

No indication is given of the reasons why, in spite of a drop in traffic receipts of £23 millions compared with 1945, railway expenditure should have increased by £8 millions, but the principal causes undoubtedly are the increase in wages and the persistent rise in the price of locomotive coal and other stores. It will be remembered that on July 1, 1946, freight-train rates were increased from 16⅔ to 25 per cent. above pre-war and passenger fares from 16⅔ to 33⅓ per cent., other than workmen's tickets and season-ticket rates which were increased only to 25 per cent., and it is quite clear from the figures in the White Paper that these were insufficient to counteract the increasing expenditure.

A good deal has happened since January, 1947, and, having regard to the serious effect which the coal crisis had, and the reduced coal allocations are having, on industrial output generally, it is surprising that the Minister of Transport has so far declined to take any action on the recommendation of the Charges Consultative Committee, dated November 15, 1946, that fares should be increased from 33⅓ to 35 per cent. and freight-train rates from 25 to 30 per cent. over pre-war.

On February 24 last he stated that, in view of the uncertainties of the future position, the Government had decided to wait until the end of March and then review the position in the light of the then traffic trends which, if considered unfavourable, would cause charges to be increased without delay. Until February 23 the receipts of the controlled undertakings had declined by over £5 million compared with 1946 and have probably dropped by a further two or three million pounds during March. As any decision now taken by the Minister will take some weeks to implement, it seems clear that the increase recommended by the Committee is too small to achieve the object of securing a net revenue approximating to £43,469,000.

The White Paper gives more details than usual of receipts and expenditure, as shown below:—

	£
Receipts	
Passenger :—	
Ordinary passengers	158,581,000
Season tickets	12,149,000
Workmen's tickets	7,593,000
Total	178,323,000
Parcels and other merchandise including mails	23,884,000
Total passenger receipts	202,207,000
Freight :—	
Merchandise (excluding Classes 1-6)	82,530,000
Minerals & Merchandise (Classes 1-6)	20,702,000
Coal, coke & patent fuel	50,479,000
Livestock	1,345,000
Total freight receipts	£155,056,000
Miscellaneous	3,401,000
Total gross receipts	£360,664,000
Expenditure	
Running and traffic expenses	183,614,000
General charges	8,493,000
Compensation (accidents and losses)	4,710,000
Rates, taxes, and rate relief	5,262,000
National insurance	2,317,000
Requisitioned privately-owned wagons :—	
Compensation, repairs, etc.	13,830,000
Allowances to staff in H.M. Forces, etc.	1,038,000
Other special items, including hire and repair charges on works financed by Ministry of Transport	2,665,000
Charge for maintenance	103,825,000
Miscellaneous	Cr. 540,000
Total expenditure	£325,214,000
Net receipts	35,450,000
Other receipts and expenditure included in the pool (net)	
Road transport (excluding L.P.T.B.)	Dr. 19,000
Steamboats	2,360,000
Canals	Dr. 224,000
Docks, harbours & wharves	Dr. 3,289,000
Hotels	1,253,000
Collection and delivery	Dr. 3,708,000
Total net receipts	31,823,000
Add :—Miscellaneous receipts (net)	5,334,000
	37,157,000
Deduct :—Miscellaneous charges	4,975,000
Net revenue of the pool	£32,182,000

ESTIMATE OF POOLED REVENUE RECEIPTS AND EXPENSES AND NET REVENUE OF THE CONTROLLED UNDERTAKINGS

	Year ended December 31					
	1941	1942	1943	1944	1945	1946
	£	£	£	£	£	£
Receipts and expenditure of the controlled railway companies and joint lines in respect of railway working and of the L.P.T.B. in respect of railway working and road services :						
Receipts : Passenger	132,106,000	163,544,000	186,281,000	194,638,000	210,556,000	202,207,000
Freight	158,826,000	176,658,000	190,908,000	196,066,000	169,663,000	155,056,000
Miscellaneous	2,903,000	3,285,000	4,490,000	3,656,000	3,662,000	3,401,000
Total	293,835,000	343,487,000	381,679,000	394,360,000	383,881,000	360,664,000
Expenditure	226,636,000	251,715,000	272,247,000	301,167,000	316,982,000	325,214,000
Net receipts	67,199,000	91,772,000	109,432,000	93,193,000	66,899,000	35,450,000
*Other receipts and expenditure included in the pool (net)	Dr. 2,074,000	Dr. 2,646,000	Dr. 3,864,000	Dr. 2,937,000	Dr. 4,352,000	Dr. 3,268,000
Net revenue of the pool	£65,125,000	£89,126,000	£105,568,000	£90,256,000	£62,547,000	£32,182,000

So far as the arrears of maintenance are concerned, under the Railway Control Agreement the charges for maintenance, including renewals, are standardised on the basis of the average pre-war charge adjusted for variations in assets, in service, and in price levels, and are borne as pool expenses. When, as generally has been the case during the last six years, the actual maintenance expenditure of the controlled undertakings

* "Government Control of Railways. Estimates of the pooled revenue receipts and expenses and resultant net revenue of the controlled undertakings for the year ended December 31, 1946." Cmd. 7106. H.M. Stationery Office. Price 1d.

is less than the agreed standardised charge, the difference, representing the estimated cost of the arrears of maintenance, is paid into a trust fund by each of the controlled undertakings. The amounts in these trust funds increased during 1946 by £3,230,000 in arrears of maintenance compared with 1945, and by £949,000 in respect of interest. At December 31, 1946, the trust funds totalled £152,399,000, as compared with £148,220,000 for the corresponding date in 1945, an increase of £4,179,000.

The figures for the individual undertakings show a very considerable variation compared with last year, ranging from a decrease of about £2 million in the case of the L.N.E.R. to an increase of over £4½ million for the L.P.T.B.

* * * *

More Transport Bill Amendments

ON April 2 Standing Committee "B" of the House of Commons held its 31st sitting and completed its consideration of the Transport Bill. The word "consideration" is used with reservation, as, because of the speed with which the Government insisted that the Bill should be dealt with, it was impossible for many of the clauses even to be discussed. For the first 14 sittings, the Committee worked under the "kangaroo" procedure under which the Chairman selected the amendments to be discussed, and for the remainder of the sittings the Government imposed the "guillotine" procedure under which a certain number of clauses had to be passed daily, irrespective of whether there was time for their discussion or not. Further, the representation of the various political parties on the Standing Committee was similar to that of the House of Commons, and, in the result, the Bill emerged with its essential features unchanged.

The only material changes are the deletion of the clauses relating to the acquisition of "C" licence vehicles; the recognition of the Government guarantee of the interest and principal of London Transport 3 per cent. stock; and the adoption of a revised compensation basis for the acquisition of privately-owned railway wagons. The proposed powers of the Minister of Transport have not been changed in any material respect.

While it may be claimed that the Bill emerged a better Bill than when it was first introduced, the fact that no less than 245 Ministerial amendments were made—an appreciable proportion of which were to meet improvements suggested by the Opposition—showed clearly that the Bill had been too hastily drafted. It is also significant that up to the time this article was prepared, the Minister of Transport had tabled a further 116 amendments for consideration on the Report stage! Many others doubtless will be tabled by the Opposition, so it is clear that the restricted time which the Government is prepared to allow for the discussion on the Report stage in the House of Commons will effectively prevent many amendments being discussed, irrespective of their merits.

One of the marked features of the proceedings in the Second Reading and the Standing Committee was the failure to elicit any satisfactory information as to the methods to be followed in effecting co-ordination of the various branches of transport and the policy to be adopted regarding the future level of transport charges. On the first point the Government spokesmen have not been prepared to give any indication as to the steps it is proposed to take to secure co-ordination, which is, or should be, the primary motive for the Bill. The Minister's powers under the Bill are so extensive that it is difficult to believe that the policy to be adopted has not been considered. If, however, it is being left entirely for the British Transport Commission to determine, it is clear that Parliament is being asked merely to approve the principle of nationalisation without any regard as to the manner in which the trade and industry of the country will be affected by its operation.

In the matter of charges, the Bill proposes that within two years from the passing of the Act, or such longer period as the Minister may allow, the Commission is to prepare and submit to the Transport Tribunal drafts of charges schemes covering the whole of the services and facilities provided by the Commission which either the Commission thinks, or the Minister may direct, should be covered by such schemes. The Bill sets out the machinery to be used in securing approval of such schemes, but gives no indication and makes no provision for the policy to be followed in preparing such schemes.

The only information obtainable regarding charges was that given by the Parliamentary Secretary to the Ministry of Transport, who stated that the Government was proposing the establishment of a charges system "on some entirely new principles." But he could only state vaguely that for the first time the country would have a central planning body entrusted with establishing a charges system within the general framework of making all the services pay; with establishing a charges system not based on what the traffic will bear, or on a profit on a particular service, but on the principle of what will be the greatest benefit to the community as a whole, and the trading community in particular.

This, he claimed, was an exceedingly fascinating problem! True, but we might also add that it is an exceedingly difficult one, fraught with the possibility that theoretical considerations might well have very serious repercussions on the nation's basic industries. It seems clear that the Ministry spokesmen again are unable, or unwilling, to give any information on the vital subject of the basis of the charges which will be adopted by the Commission to encourage transport users to obtain the maximum advantage from the different forms of transport for particular purposes.

It is a sad commentary on our Parliamentary system that such a short time is being allowed for the discussion of a Bill which may seriously affect the whole of the travelling and trading community. Its hasty preparation already has necessitated the Minister responsible asking for it to be amended in more than 350 places, even though a number of those amendments are consequential. Further amendments doubtless will be made in the House of Lords. We should not be surprised if, should it reach the Statute Book, the British Transport Commission will find that some, at least, of the difficulties confronting that body could have been minimised if more time had been given to its preparation and consideration. In normal circumstances, the task of the British Transport Commission would have been most difficult. Recent events have shown that the Bill scarcely could have been introduced at a more inopportune time, and the Commission undoubtedly will find that circumstances beyond its control will make its task extremely unenviable.

* * * *

Transport Bill and Staff Compensation

IT seems doubtful whether those concerned have realised the full effects of the statement which the Minister of Transport made on the subject of the compensation provisions in the Transport Bill when Clause 105 (now renumbered 99 in the reprint of the Bill) was considered by Standing Committee "B" in the House of Commons on April 1. To say that this clause was "considered" is, perhaps, an overstatement. Under the "guillotine" about ten minutes were available—for a short statement by the Minister and a few brief comments from Mr. Assheton on the Opposition side—but no real discussion in fact took place on a clause of paramount importance to over 600,000 employees on the railways alone.

The Minister made it clear, first, that the rights of present employees to receive compensation for loss of employment or worsening of conditions in consequence of the transfer of employment effected by the Bill would be determined by regulations for the framing of which he will be responsible, and that those regulations would embrace not only the employees of the main-line companies and the L.P.T.B., but also the employees of the Railway Clearing House and of the cartage companies fully controlled by the railway companies. He stated—and this must be considered as satisfactory—that in the laying down of the circumstances in which compensation could be claimed, the wording of the Third Schedule to the Railways Act, 1921, would be followed as closely as possible. But he made two important qualifications—first, that eight years' continuous employment (including war service) would be a condition precedent to any right to compensation, and, second, that "regard will be had to the applicant's prospects of finding alternative employment."

The Minister had no time to explain the reasons for these qualifications, nor the principles on which the second of them would be invoked: but undoubtedly he created the impression in the mind of one at least of his hearers, that no railway officer or servant who has been recruited since 1939 will have any chance of obtaining compensation if the Transport Commission has no use for his services in the future—nor might

any other railwayman, however long his service, if he were employable elsewhere.

We feel, therefore, that these conditions deserve far more explanation and consideration than so far they have received. Many men have been recruited into the railway service since 1939, and it may well be felt that " directed labour " has earned little right to compensation. But if the Transport Bill is to realise the ambitions of its supporters, it is to be expected that economies will be effected, and staffs reduced, particularly in the administrative and technical grades of the railway service. Although, no doubt, the great majority in these sections will continue in their present, or in similar, jobs, there may be an appreciable proportion of the present staffs which may become redundant. It is well known that not a few young men have been recruited into the railway service since the end of the war, and more than one of the companies has gone outside its own staff to find experienced men to fill responsible posts in the last few years. It seems hardly reasonable that such men should be liable to dismissal without any right to compensation whatever. Before it is too late, full consideration should be given to cases of this type.

Here it may be material to consider also the position of those who are members of railway superannuation funds, but may be liable to dismissal by the Commission. We are by no means clear that their case is fully protected. It is a condition embodied in the rules of the present companies' funds that a member who resigns, or is dismissed, from the service is entitled only to the return of his own superannuation contributions, and not to those made by the company as his employer. It makes no difference that his dismissal may be due to no fault of his own. However reasonable this rule may be under normal conditions, when a railway officer, once he is placed on the permanent staff and has become a member of the appropriate fund, is liable, under customary practice, to dismissal only if he is incompetent or dishonest, it bears hardly on cases which may arise as a result of the Transport Bill. Men who may be dismissed as a result of economies to be effected in the national interest, surely are entitled to retain their former employer's contributions, which form an essential part of the provision which they have earned by their labours for their old age.

There can be no doubt that the official intention is that all employees affected by the Bill shall receive a square deal. Mr. Barnes has given more than one assurance to that effect. But the compensation provisions of the Bill as they now stand, and the statement to which we have referred, do not convince us entirely that the subject has been considered in the detail which its importance merits; it is to be hoped that the last word on the subject has not yet been said.

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Railways and Coal

ELSEWHERE in this issue we reproduce a leading article which was published in *The Financial Times* of April 19, and which is, in our opinion, an excellent reply to the Chancellor of the Exchequer and others who seek to find in any deviation from the high standard of efficiency for which the railways were noted before the war, some failure on the part of the railway administration. *The Financial Times* leader postulates the fact that the strain on the operating departments naturally is much greater than ever before in having to counteract physical deficiencies, and, as quoted in the leader, " these are circumstances in which demands on the railways can be met only by an outstandingly high standard of operating efficiency. That, as even Mr. Barnes admits outside the Committee Room, depends on the operating staff."

Only those in close touch with the actual operation of the railways today can appreciate fully what is being done. The restrictions imposed by the Ministry of Transport through the R.E.C. are manifold, and the majority create fresh problems and involve the revision of standard known and tried methods of operation, to quote one example, which arises from the enforced cut in the booked passenger mileage and the need to avoid special mileage. Booked reliefs cannot be legislated for to the same extent as would normally be the case, and this prevents the skilful planning of stock working at a time when the number of coaches off for repair is greater than ever before. Also, the staff position is such that many key grades are filled with men of two or three years' service as a result of the cancellation of the Essential Work Order, and the difficulty in recruitment has left many vacancies unfilled.

The reduction in the ratio of operating efficiency for the reasons mentioned has to be counteracted by the supervisors and the comparatively few operating executives who, fortunately for the country, are tried and experienced men at the top of their profession.

With the big task ahead of the railways during the forthcoming summer and winter, and with the uninformed, but biased, observations which can be heard in so many quarters, it is refreshing to see the position so well explained. We hope it will be assimilated by all who may have been misled into making the present shortages of equipment an excuse for suggesting that nationalisation is the panacea for all ills. It rightly acknowledges the service rendered to the community during one of the worst winters we have ever suffered, and utters a warning that there are dangers ahead. The avoidance of those dangers is the responsibility of the Government.

* * * *

London Passenger Transport Board

THE annual report of the London Passenger Transport Board for the calendar year 1946 was published last week, after considerable delay which arose from the recent fuel crisis. The principal financial figures were given in our March 7 issue. Net revenue, after giving effect to the estimated operation of the financial arrangements with the Government in respect of control, was £4,656,639, which compares with £4,680,566 for 1945. There was a profit on realisation of investments of £23,952 compared with £5,616, and the transfer from London Transport " C " Stock Interest Fund was £15,234, compared with £1,170. The total available for appropriation, therefore, for 1946 was £4,695,825, against £4,687,352 for 1945. Interest on London Transport stocks again absorbed £4,672,345; the " C " stock payment of 3 per cent. was the same as for the previous year. The amount transferred to the " C " Stock Interest Fund was £23,480, against £15,007 a year earlier.

The report states that in 1946, the first full year of peace since the end of hostilities, the main effort of the Board has been concentrated on the restoration of services to standards compatible with the volume of traffic; the resumption of the development of the road services in outlying areas; the overtaking of arrears of maintenance, and the renewal of rolling stock and equipment; the completion of the new works' programme, 1935-40, and the replacement of South London trams by another form of transport.

Much progress has been made in the restoration of services, and the volume of car-miles operated on both road and rail had been raised by the end of the year to a higher level than ever before.

The total mileage in 1946 was 578,925,000, which compares with 573,376,000 in 1938-39. Services were progressively increased during last year, and the mileage run during November was equivalent to an annual mileage of 609,585,000. Service car-miles run on the Board's system alone at the end of 1946 had reached the equivalent of 570,716,000 a year. Railway services also were progressively augmented, and included such measures as a reduction of the headway on Central Line services from 4 to 2½ minutes throughout off-peak operation. At the end of the year, car-mileage operation by railway rolling stock was equivalent to 15 per cent. above the pre-war level.

A marked feature of post-war London has been a great general increase in travel. Far more persons travelled by London Transport than in any previous year. The total was 4,259,406,000 as compared with 3,782,098,000 in 1938-39, and more than half this number was carried in the buses. The number of passengers originating on the Board's services averaged 11,700,000 daily throughout the year, compared with 10,400,000 before the war. The Board has decided that fuel-oil buses in due course shall be substituted for remaining trams in preference to trolley-buses. This decision has been reached because the amount of capital that would be redundant by conversion to bus, rather than to trolley-bus, operation, has diminished; with the new connection enabling Greenwich generating station to supply power to the eastern extension of the Central Line, the loss of electrical load consequent on conversion to bus operation will be offset by the increase in

railway load when this extension is in full operation; the wages differential between bus and trolleybus crews has decreased.

Orders have been placed for delivery in 1947 of 143 railway cars. These will enable certain of the older types of stock on the Metropolitan and District Lines to be replaced. The introduction of these cars will mark the first appearance on the Board's railways of the all-motor-car train in which 50 per cent. of the axles will be motor-driven. The principal advantage of this high proportion of motor-driven axles is that more rapid acceleration and higher average speeds are made possible. Other advantages are greater reliability and better riding trains, causing less wear on wheels and track, with consequent economies in maintenance expenditure.

In a reference to the Transport Bill, the report points out that compensation payable by the Transport Commission of London Transport stocks is to be satisfied by the issue of British Transport stock; the Government has indicated that the latter stock is to be a redeemable security. The Chancellor of the Exchequer has assumed, for illustrative purposes, that the stock would bear 2½ per cent. interest, and would be issued at par. On this basis, the effect of the transactions on the nominal values and annual interest applicable to the existing London Transport stocks would be:—

Existing security	London Transport stocks	Nominal value British Transport stock	On London Transport stocks	On British Transport stock	Annual interest Reduction Amount	Per cent.
	£	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
4½ per cent. "A" (1985/2023) ...	100	133 3 9	4 10 0	3 6 7	1 3 5	26
5 per cent. "A" (1985/2023) ...	100	142 3 9	5 0 0	3 11 1	1 8 11	29
3 per cent. guaranteed (1967/72) ...	100	100 0 0	3 0 0	3 0 0	—	—
5 per cent. "B" (1965/2023) ...	100	128 3 9	5 0 0	3 4 1	1 15 11	36
"C" (1956 or thereafter) ...	100	67 3 9	*3 0 0	1 13 7	1 6 5	44

* Actual rate of interest for year 1946

The holders of the above classes of London Transport stocks, except the 3 per cent. guaranteed stock, 1967-72, and the "C" stock, would thus receive British Transport stock with a nominal value greater than the nominal value of their present holdings, but the interest receivable on the British Transport stock, though calculated on the larger nominal values, would be smaller than the return on the present stocks. As regards the 3 per cent. guaranteed stock, 1967-72, the nominal value of the stock and the interest receivable in respect of it would be unchanged. The nominal value of the present holdings of "C" stock would be reduced in the proportion of £67 3s. 9d. British Transport stock to £100 of "C" stock, and this £67 3s. 9d. of British Transport stock would carry a fixed annual income, assumed to be £1 13s. 7d., while the rate of interest paid on the "C" stock is dependent on the net revenue available in each year for the purpose, with a standard rate of 5½ per cent. and, in certain circumstances, a maximum rate of 6 per cent.

On the same assumptions as to terms of issue, the nominal value of the British Transport stock would compare with the nominal values of the existing London Transport stocks (excluding the "L.A." stock for which the compensation value is not yet known) as follows:—

London Transport stocks	Nominal value of London Transpt. stocks	Nominal value of Brit. Transpt. stock	Incr. (+) or decr. (−) Amount	Per cent.
	£	£	£	
4½ per cent. "A" (1985-2023) ...	23,843,249	31,756,227	+7,912,978	+33
5 per cent. "A" (1985-2023) ...	16,263,950	23,125,304	+6,861,354	+42
3 per cent. guaranteed (1967-72)	12,905,641	12,905,641	—	—
4½ per cent. "L.A." (1975-2023)	9,835,036	(Exchange terms not known)		
5 per cent. "B" (1965-2023) ...	23,709,830	30,393,038	+6,683,208	+28
"C" (1956 or thereafter) ...	25,698,802	17,266,383	−8,432,419	−33

Under the Railway Control Agreement the estimated amount of the maintenance allowance for 1946 is £13,385,788. Out of this, expenditure on repair work has been met, and provisions have been set aside to the renewal reserve and the maintenance reserve of £2,680,000 and £215,000 respectively. These provisions compare with £2,700,000 and £125,000 respectively for the previous year. There remains a balance of the maintenance allowance of £2,000,481; added to similar balances for previous years, the accumulated unappropriated balance of the maintenance allowance is now £19,282,711; to the extent to which the money representing the maintenance allowance is not spent, the balance is paid into a trust fund for arrears of maintenance, and the unspent monies contributed by the Board to this trust fund from the commencement of control to the end of last year total £35,446,393, to which has to be added £167,336 in respect of joint lines, making £35,613,729 in all.

Dealing with future railway developments, the report states that a very rough estimate of the aggregate expenditure on schemes of railway improvement in the London area, whether to meet present or prospective needs, may well amount to some £200,000,000.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

"Guide to Economics"

F.C. de Buenos Aires al Pacifico,
Dpeto, Mecánics, Yunin, F.C.P. (Rep. Argentina)
March 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Reading the "Scrap Heap" in your issue of January 10, under "Guide to Economics," I quote you:—"When someone stops earning—someone stops buying." No, Sir, when "Someone stops earning"—someone stops *eating*, and that's the crucial problem—and all else is ballyhoo!

Yours faithfully,
A. VIGIL

Fifty Years of Rail Transport

Goods Station, L.N.E.R.,
Middlesbrough. April 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am afraid that Mr. Dodsworth, in your issue of March 14, has an axe to grind. He is, I believe, a man with several minor academic achievements who has failed to impress a soul with his railway knowledge or work. He does not speak for the rank and file here. Indeed, he cannot, for "he knows not they, nor do they know he."

The rank and file believe there will always be room on the railways for the college graduate. They welcome him, willingly help him, and in turn are helped, for invariably he is a sportsman in the real sense of the word.

The terms favouritism and nepotism are synonymous, whilst sycophancy disappeared with Queen Victoria. Of all unfair methods of promotion, by seniority is the least unfair, and ninety per cent. of the promotions in this area are made on this basis. The ten per cent. covers the "most suitables," for there must always be provision for the outstanding man, as also the dreamer must be left to dream his dreams.

Unlike Mr. Dodsworth, I have met the eight District Goods Managers and many more besides. All, in my view, were actuated by the same impartial desires, as is proved by there being little or no trouble in this hotbed of trade unionism for very many years.

Yours faithfully,
WILLIAM GRAY

The Materials of History

64A, Longridge Road,
London, S.W.5. April 14

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Many of your readers will have seen an article in *The Sunday Times* of April 13 entitled "The Materials of History." In it, Miss Joan Wake, the writer, who is well known among local historians and in a wider field for her work in connection with Northamptonshire records, pleads for the preservation of records affecting local history and administration. "The holocaust of historical material," she writes, "which took place in the salvage campaigns of the late war, with the cognisance and largely on the orders of Government departments, has made for ever impossible the writing of any fully-detailed and comprehensive history of local administration."

Strong words, but justified. They apply with equal force to the narrower but still highly important field of transport history. Many of the archives, records, minute books, and other documents which contain essential material for histories of transport undertakings are being destroyed unsystematically but thoroughly; not only the "salvage campaign," which caused

some sickening losses, and enemy action, but also wilful impatience with what the vandals call "old junk" have ensured that conjecture will take the place of certainty about many episodes in transport development.

Railway companies, by their nature as statutory undertakings, necessarily must maintain proper records at their head offices. The danger does not lie so much there as at provincial centres, headquarters of companies now defunct and forgotten by all except the aged railwayman and the antiquarian. To quote a case within my own knowledge, which occurred quite recently while I was investigating the history of a small but important railway, a stoutly bound and clasped volume containing copious details about its policy and management, which have survived nowhere else, was rescued from a bonfire already well alight.

Your readers can do much to ensure that the senseless destruction Miss Wake writes of is not carried further if they will insist when they hear of records being cleared out that the usual injunction—"burn before reading"—is not observed, and that any document that looks interesting is to be given at least a chance of survival.

Already one of our great sources for information on the railway age has been impaired seriously; the local newspapers stored at the British Museum at Colindale have lost many of their nineteenth century files by war damage. They are irreplaceable, and this makes it all the more important to stop the same thing happening, through ignorance, not malice, to the scattered records that do remain.

For railway history is not merely an exercise for antiquarians; without the illumination it sheds, it generally is impossible to understand the present situation.

Yours faithfully,
MICHAEL ROBBINS

L.M.S.R. Standard Locomotive Classes

3, Worcester Court, Headstone Drive,
Wealdstone, Middlesex. April 18

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The review on page 392 of your April 18 issue of the L.M.S.R. standard locomotive classes is of great interest, and in a way may be said to mark the end of an epoch.

Three features have been in constant evidence since the 1840s—four coupled wheels, Stephenson's or Howe's link-motion valve gear, and round-topped fireboxes; two of these are due to disappear completely from the L.M.S.R., whilst of the eleven steam-driven types, only one, the Class "3" 0-6-0 tank engine, retains Stephenson gear. All the others use Walschaerts valve gear, outside in every case except the 3-cylinder rebuilt "Scot" which, of course, has a third inside set for the centre cylinder.

It is with regret that many of your older readers will see the passing of the fine old compounds and the long line of 0-6-0 goods, stretching back through Fowler, Deeley, and Johnson to Kirtley; but most will agree that the new types would appear to cover the wide range of the requirements of the L.M.S.R. most adequately. One can only regret that the lovely Midland red has been discarded for a utilitarian black.

Yours faithfully,
K. N. HARRIS

Public Hardships in a Snowbound Train

"Kerrisdale," Bucks Avenue,
Oxhey. April 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have read with interest the recent correspondence on the subject of clearing snow, and I most heartily agree with the remarks of Mr. Richard Parkes. [See letter on "Snow Ploughs" in our March 7, March 21 and March 28 issues.—ED., *R.G.*].

On March 5 last, during the very severe weather, I had cause to return to London from Stafford. I arrived at Stafford Station to catch the 5.31 p.m. train, which is due at Euston at 8.10 p.m. The train arrived at Stafford at 6.20 p.m. and departed within about 10 minutes. That train arrived at Euston at 12.20 p.m. on the following Thursday morning, March 6. The L.M.S.R. to my mind comes in here for some very severe criticism. First, the company must have known there were drifts of snow between Rugby and Stafford. It took that train 13 hr. to cover 51 miles. No effort whatever was made at an announcement that heavy delay must be expected.

On arrival at Rugby at 6.30 a.m. the following morning, we pulled up in the through road. For the best part of the next three hours we remained there. No effort whatever was made on behalf of the railway company to attempt to supply food or drink to the passengers. The result was that it was almost 18 hr. before a very large percentage of those passengers were able to gain food or drink. The gas in the restaurant car had run out. The food had run out. Why could not emergency supplies have been carried?

The railway companies are too much like the Labour Government, in that they withhold information from the public. It is high time that they dropped this "take it or leave it attitude" and got down to some really intelligent planning, so that the circumstances that were found on the railways during the recent winter are *never* allowed to happen again.

Yours faithfully,
A. R. GRIERSON

Transport Administration in Tropical Dependencies

116, Royston Road, Mountain Rise,
Pietermaritzburg, Natal. April 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—May I trespass on your space to direct attention to a one-letter error in the above-mentioned book, which I should have noticed in the proof and which is misleading.

On page 125, in the last paragraph referring to the U.S.A. Denison Act, the words "10 to 20 per cent. *of* the all-rail rate . . . . " should read "*off* the all-rail rate. . . ."

Yours faithfully,
G. V. O. BULKELEY

Development of Locomotive Power at Speed

61, Rupert Street,
Glasgow, C.4. April 15

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—We, in Scotland, are so accustomed to misuse of the terms "English" and "England," that it takes a more than usually flagrant example to attract attention, but I must protest against the description of Daniel (not David) Kinnear Clark as "that great English pioneer," in your article headed "Development of Locomotive Power at Speed" (April 11). Clarke, I believe, was born in Aberdeen, and most of his valuable experimental work on locomotives and train resistance was carried out in Scotland.

Yours faithfully,
MONTAGUE SMITH

Lewis Cecil Geach

2, Alexandra Road,
Watford. April 19

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—As recently as January 20 I wrote the following to the Honorary Secretary of the Running Superintendents' Association in connection with the first post-war annual dinner (of which association the late Cecil Geach was a founder-member):—

"If I had been present and saying a few words, in anything I said there would be an expression of my appreciation of all the help I had from Mr. Geach on our own Midland Railway."

Therefore it came somewhat as a grievous shock to read the obituary notice of Lewis Cecil Geach on page 379 of your April 18 issue.

Geach laid the foundation for the present L.M.S.R. motive power practice, and as I was very closely associated with him, I fully understood his character and thoroughness. He was popular with industrious men, and also gave a great deal of his personal time to developing ambulance work and recreation at the running sheds he worked at. I consider it is unfortunate, to say the least, that a natural shyness should be described after his death in the manner it has been. *De mortuis nil nisi bonum.*

Yours faithfully,
HAROLD RUDGARD

STAINLESS STEEL RAIL SURFACE IN LONDON TRANSPORT SIDINGS.—Stainless steel is being used on rails by London Transport to ensure electrical continuity of track circuits in special situations. In certain refuge sidings, which are used only occasionally, the rail surface rusts sufficiently for there to be some risk of vehicle wheels not making good enough contact with the rails to ensure the passage of the signalling current. After considerable experiment and investigation, the most suitable means to ensure contact has been found to consist of a thin strip of stainless steel on the top of the rails. This is made by depositing weld metal of suitable composition in a continuous run. Experience over some 18 months service has been so satisfactory that the scheme is to be extended to 10 sidings where rust is likely to occur.

The Scrap Heap

Unholy Mess is Coming

Mr. Alfred Edwards, 59-year-old Socialist M.P. for Middlesbrough East, said at a meeting in Eastbourne: "If civil servants are allowed to run the coal industry it will prove the biggest failure the country has ever known.

"They will make an unholy mess of things, because they are not capable of running industry."—*From "The Daily Express."*

* * *

Corridor Travel

There will be no room on the trains for a million holiday-makers this year. And 1,500,000 others will have to make their journeys standing in packed corridors. Controls which have cut rail services by 10 per cent. are already affecting long-distance bookings.

An official of the L.N.E.R. said: "A 10 per cent. cut in our passenger services at a time when more people than ever are taking holidays is catastrophic. Last year we were full to capacity. This year it is inevitable we will have to leave people behind."

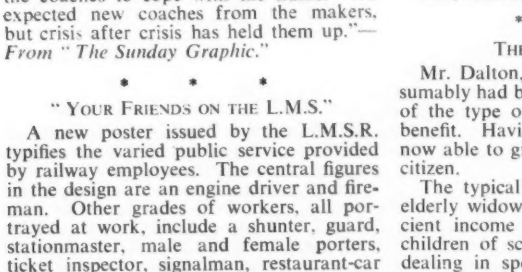
Already sleeper reservations on all main-line routes have to be booked up to two months ahead. On the roads it is even worse. Thousands of would-be travellers by coach to principal holiday resorts will have to change their plans. There is no more room on the coaches.

The traffic manager of Coastal Coaches said last night: "Bookings are 50 per cent. up on last year—and we have not the coaches to cope with the traffic. We expected new coaches from the makers, but crisis after crisis has held them up."—*From "The Sunday Graphic."*

* * *

"Your Friends on the L.M.S."

A new poster issued by the L.M.S.R. typifies the varied public service provided by railway employees. The central figures in the design are an engine driver and fireman. Other grades of workers, all portrayed at work, include a shunter, guard, stationmaster, male and female porters, ticket inspector, signalman, restaurant-car attendant, and chef. Actual photographs of L.M.S.R. staff were used as a basis in some cases. The design is surmounted by the L.M.S.R. crest. This poster, which is reproduced above, is the first post-war design to be carried out for the Advertising & Publicity Department of the L.M.S.R. by Septimus E. Scott, who before the war carried out a number of popular poster designs.



2,000,000 Bottles Salvaged by L.M.S.R.

The two-millionth empty bottle to be salvaged at the L.M.S.R. bottle-sorting depot at Manchester has passed through the depot, which was set up in 1941. During the past twelve months nearly 410,000 have been recovered—31,000 more than in the previous twelve months.

Salvage of all kinds still continues on the L.M.S.R. and the past year's aggregate of 4,213 tons of general salvage is only 560 tons less than in the preceding year. Commodities salvaged include 1,561 tons of metal, 1,590 tons of paper, 474 tons of timber, 27 tons of bricks and 6 tons of rubber.

* * *

100 YEARS AGO

From The Railway Times, *April* 24, 1847

KENDAL and WINDERMERE RAILWAY.—The above railway is now OPEN, and the most direct route is thus afforded to the public for visiting the splendid scenery of the Lake district of Westmoreland and Cumberland. Information respecting the trains may be had on application at any of the stations on the London and North-Western and Lancaster and Carlisle Railways.

By order,
THOMAS HUDSON, Secretary.

Railway station, Kendal, 21st April, 1847.

LONDON and NORTH-WESTERN RAILWAY.—STEAM ENGINES for SALE by AUCTION.—On TUESDAY, the 15th of JUNE, at Camden-station, on the London and North-Western Railway, if not previously disposed of, two low-pressure stationary engines, 60-horse power each, made by Maudslays. These engines are in good working order, and have duplicate pistons, also five fly and rope wheels, and a travelling frame; two circular boilers, 20f. 6in. long, 7f. 8in. diameter, with two tubes in each, 2f. 8in. diameter; two marine boilers, 18f. long, 7f. 6in. wide, and 8f. 9in. high; 100 feet of 9½in. steam-pipe, safety-valves, dampers, frames, &c., complete.

Office, Euston-station, April 17, 1847.

* * *

The Typical Citizen

Mr. Dalton, in framing his Budget, presumably had before his mind's eye a picture of the type of citizen he most wanted to benefit. Having studied the Budget, I am now able to give a brief description of this citizen.

The typical citizen appears to be an elderly widow who contrives to earn sufficient income to support herself and her children of school age by running a shop dealing in sports requisites, with a small trade in fuel oil as a useful sideline. Her home is already well equipped with domestic heating and cooking appliances, but she could do with another hot-water bottle or two. She is habitually clad in clothes of artificial silk, her only sartorial extravagance being a weakness for silk stockings. She is a non-smoker, but patronises the football pools and enjoys an occasional visit to the White City or Epsom.

She does not indulge in the dubious practice of buying and selling real property, and her Stock Exchange transactions consist simply in periodically placing her small savings in companies which, while never distributing any of their profits, have no intention whatever of capitalising their reserves or issuing new shares on bonus terms. She has no wealthy relative in poor health likely to bequeath her a legacy of more than £2,000, but she will reach the age of 60 next autumn just in time to draw her post-war income-tax credits.—*"The Diarist," in "The Financial Times."*

Job Insurance Policy

In the long run, it is the traveling and shipping *public* that writes our pay checks and provides us with the opportunity to win security and advancement. That is why building *good public relations* is a job for us all. It's the best *insurance for our jobs!*

[*From "Company Manners" issued by the New York Central System*]

* * *

Workers and State Control

Major H. E. Crawfurd, Vice-President of the National Road Transport Federation, said at a Transport Bill protest meeting at Croydon:—

"I want to give a warning to transport workers and to all workers in industries threatened by State control: If now you are dissatisfied with your employer you sack him as readily as he can sack you. If you are a competent man you are free to get another job. But if you serve the State and the State owns all transport or all your particular industry, there will be only one employer. If that happens and you run into trouble the State will be witness, judge, jury, appeal court and jailer."

* * *

The Dividend Tax

But even if the case were made out for stopping excessive or increased dividends, how does that justify a differential tax on all dividends, excessive or meagre, increased or reduced? There is still another objection to a profits tax that falls on the company, and therefore exclusively on the equity shareholder. The point was put very clearly some years ago by an authority on public finance, writing of the Corporation Profits Tax that was levied for a few years after the first war. This tax, he said:—

> was a bad tax. . . . For it discriminated against a particular class of property-owners, namely, the ordinary shareholders in joint stock companies, as compared with all other classes, including debenture-holders and the holders of gilt-edged securities. It was, therefore, in effect, a tax on risk-bearing, and tended to divert the flow of capital from risky to comparatively safe investments. But, in view of the need that risks should be taken and the reluctance of many investors to take them, this was a harmful diversion.

The quotation is from "The Principles of Public Finance," by H. Dalton, M.A., D.Sc.(Econ.). Thus does politics corrupt learning. The Opposition will be well advised to put their confidence in Dr. Dalton rather than in the Chancellor of the Exchequer and to give notice that they will repeal this piece of class malice at the earliest opportunity they are given.—*From "The Economist."*

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Expenditure Estimates, 1947-48

An increased expenditure by the Railways & Harbours Administration of £11,239,000 during the 1947-48 financial year is shown in the estimates of expenditure to be defrayed from revenue funds tabled by the Minister of Transport, Mr. F. C. Sturrock, in the Assembly recently. The estimated expenditure is £76,689,000, compared with £65,450,000 originally foreseen for last year (later increased to £73,931,000, as reported in *The Railway Gazette* of March 7).

In addition, the estimates for capital and betterment works laid on the table by the Minister show an expenditure of £17,509,255, an increase of £3,282,673 compared with the estimates last year. Significant increases are: working capital, £1,973,400; airways, £473,116; road motor services, £495,607; rolling stock, £500,953; new works on open lines, £98,648; and expropriation of the Natal—Zululand railway, £349,900.

Cost of New Rolling Stock

The estimates show that £2,429,797 is to be spent on steam locomotives, £321,000 on electric locomotives, £1,645,681 on new coaching stock, £668,000 on electric motor coaches, and £3,523,171 on goods stock. This brings the total expenditure on new motive power and rolling stock to £8,600,481. New vehicles for road motor services are to be bought at a cost of nearly £1,000,000.

The estimates for the construction of the three major aerodromes have been increased from £8,000,000 to £9,571,000. Provision is made for an expenditure of £359,697 on five steamships, which the administration is to acquire at an estimated cost of £1,369,800. Expansion of airways is reflected in the proposal to spend £938,000 in the current year on additional aircraft, workshop machinery, and passenger motor vehicles.

PALESTINE

Terrorist Activities

After a respite of three months, further acts of sabotage against the Palestine Railways occurred on the night of March 13. An oil train was blown up at km. 86, and 6 bogie and 10 four-wheel oil tanks were derailed. At km. 80, close to Jerusalem, a goods train was blown up and damaged. The driver was killed, and the fireman injured. Also, the line was breached in two places by mines between Yibna and Lydda on March 14, but no trains were damaged.

Adverse Financial Position

As a result of a decline in military traffic and acts of sabotage, the Palestine Railways are faced with a heavy deficit for the financial year ended March 31, 1947. The total decrease in revenue for the ten months ended January 31, 1947, as compared with the same period of the previous year, is £P.542,488 and it is estimated that the total short-fall in earnings will approximate to £P.730,000. In addition, very large sums in respect of material damage and the maintenance of security services have to be found.

The 1947-48 estimates both of revenue and expenditure have been revised in the light of this situation, and all capital and renewal works have been curtailed drastically. It is feared that serious cuts in staff, whose numbers were augmented exceptionally to cope with wartime traffic, will be necessary. Work on the reconstruction of the Yarmuk Bridge (see *The Railway Gazette* of January 3) has been suspended. This means that connections with Transjordan will be maintained by the Samakh—El Hamme road link.

Middle East Transport Conference

A further meeting of the Middle East Transport Conference was held in Cairo on March 5, at which Palestine was represented by Mr. A. F. Kirby, C.M.G., General Manager, Palestine Railways. Owing to the uncertainty of the political situation, little was accomplished; the next conference is due to be held at Istanbul in July. It is hoped that the question of opening the Nakura—Tripoli line in the Lebanon will be discussed. The purchase of this railway from the British military authorities by the Lebanon Government was recorded in *The Railway Gazette* of January 24, 1946.

EGYPT

State Railways Coal Shortage

At the end of January, coal reserves on the State Railways had fallen to about 6,500 tons, and as a result all divisional superintendents were instructed to economise 3 or 4 coal-fired engines used for shunting. Train engines arriving with trains, or any oil-fired engines available in the sheds, were used to assist in shunting when required. In the meanwhile, more coal-fired engines are being converted to oil fuel at Abu Zabaal shops.

Proposed Similla—Capuzzo Service

It has been decided recently in principle to re-open the line between Similla and Capuzzo for passengers and certain classes of goods traffic, by running one mixed train weekly in both directions. The train will carry water cisterns to supply the engine *en route*, and for water supply to the staff dwelling on the line. It will be composed of one first and second class composite coach, one third class bogie coach, and a luggage and brake van. The distance between Similla and Capuzzo is 260 km. Trains between Similla, Capuzzo, and Tobruk were withdrawn on January 2, as reported in *The Railway Gazette* of February 14.

CANADA

Diesels for Prince Edward Island

It is proposed to change over the Canadian National Railways lines on Prince Edward Island from steam to diesel-electric traction. There is difficulty at present in ensuring sufficient water supply for steam locomotives, and the large shipments of coal required for steam locomotive use interfere with other traffic on the Northumberland Strait ferry. The transfer will be made gradually, and no date has been given for the inauguration of the first diesel service.

It has been announced that the Canadian Locomotive Company has entered into arrangements with the Baldwin Locomotive Works, of Philadelphia, and its subsidiary, the Whitcomb Locomotive Company, of Rochelle, Ill., to manufacture in Canada the various types of diesel and diesel-electric locomotives developed by these companies. The President of the Canadian Locomotive Company stated at the same time that the company had received an order for 18 75-ton diesel-electric locomotives from the C.N.R. in connection with the plans for diesel-electric operation on Prince Edward Island.

UNITED STATES

Loudspeakers in Carriage Seating

The Budd Company has designed a new carriage seat with a loudspeaker installed behind the upholstery in the back. A dial on the arm of the seat enables the passenger to select one of four broadcast programmes, and to control the volume so as to be audible only to himself. It is, therefore, possible for passengers sitting side by side to receive different programmes without interference.

Application for Fares Increase

Eastern railways recently filed with the Interstate Commerce Commission a petition for an increase in passenger fares. They asked authority to raise coach fares from 2·2 cents a mile to 2·5 cents, and parlour and sleeping car fares from 3·3 cents a mile to 3·5 cents. Authority was sought also to increase season tickets and other forms of multiple fares, in some instances by specific amounts and in others by approximately 20 per cent. The New Haven Railroad, which filed a separate petition on January 2, 1947, is not a party to the petition, nor is the Central Railroad of New Jersey, in so far as the application covers seasons and other multiple fares.

This is the first general increase in passenger fares sought since 1936, when fares in coaches were set at 2 cents a mile, and fares in Pullman cars at 3 cents a mile, except for the commission's order of January 21, 1942, and its subsequent order of December 5, 1946, under which fares have been 10 per cent. greater than those prescribed in 1936.

INDIA

Losses in South Indian Strike

During a farewell address to Delhi Congress Workers, Mr. Asaf Ali, Ambassador Designate for India in the U.S.A., and former Minister of Railways & Transport in the Central Government, mentioned that the strike of South Indian Railway employees last year resulted in a loss of £590,000. In addition, said Mr. Asaf Ali, Madras faced an acute food shortage, and about 15,000 gal. of petrol were consumed every day to supply foodstuffs to needy areas. The strike was reported in *The Railway Gazette* of October 4, 1946.

Recommendations on Catering

A sub-committee appointed to consider questions of catering, and the sale of miscellaneous articles on stations, made its report at a recent meeting of the Advisory Council for Railways. The council agreed in principle to the recommendation that there should only be one class of refreshment room in future in place of the existing first and second class refreshment rooms, and that Hindu and Muslim refreshment rooms should be retained.

The council was of the opinion that all refreshment rooms should be run by Indian contractors; that beef, pork, ham, or bacon should not be served in refreshment rooms or dining cars; and that dining cars should not be abolished, but should serve Indian dishes also.

Light Signal Standardisation in France

Adoption by S.N.C.F. of multi-lens type signals constructed on the unit system

BEFORE the French National Railways system was formed, most of the component undertakings had made installations of colour-light signals, and had adopted different designs of equipment for the purpose. In addition, there were on some routes, notably the former Est main lines, extensive installations of power-operated signals of the ordinary types, while large numbers of manually-operated signals were equipped in due course with electric in place of oil lighting. The light signal had become accepted as the standard for all new power installations, and for automatic signalling generally, and the desirability of standardising not only signalling principles and practice, but also the main details of the equipment, had been recognised before the war broke out.

One of the most important steps in the working out of uniform designs was to obtain a range of light signal units adapted to the somewhat involved combinations of aspects that can arise at times in applying the official code adopted not long before the war. To this has since been added an additional cautionary aspect, called "*préavertissement*," equivalent to the British fourth aspect but given by green and yellow. This has no equivalent in the manually-worked signals. The internal mechanism, or searchlight type, signal having been ruled out in favour of the multi-lens type, the designs now adopted incorporate a great many lenses—up to nine in some cases—not to mention the direction, or junction, indicators sometimes mounted above them.

Careful study and design has been called for in producing unit parts which would enable any type of signal to be made up, suitable for fixing at any location, including over or alongside lines electrified on the overhead system. Details of the work have been given in a paper by Monsieur J. G. Walter before the Société Française des Electriciens, and published in the society's journal for June-July, 1946. For the three standard indications of "stop," "caution," and "proceed," a lens diameter of 220 mm. (8$\frac{11}{16}$ in.) has been chosen, the three aspects being contained in one common casting; but for the reduced speed and reduced speed reminder aspects—double yellow, horizontally and vertically respectively—a smaller one, 160 mm. (6$\frac{5}{8}$ in.) dia., has been considered preferable. This is used also for the second red light of the "absolute stop" aspect, equivalent to the *carré* of the mechanical system.

The additional single green unit, required for "*préavertissement*," has been made full size, and appears in conjunction with the bottom, or yellow, unit of the ordinary 3-aspect group. It should be noted that an ordinary plain 3-aspect signal has the red lens in the centre and not at the bottom, as in this country.

This has necessitated the adoption of two sizes of single unit. The transformers invariably are kept separate and placed in the signal apparatus case. All signals which may be passed under the "stop and proceed" rule carry a permissive marker, 70 mm. (2$\frac{3}{4}$ in.) dia., giving originally a lunar white light, similar to that seen in the direction indicators, but now the light is of a somewhat more bluish hue, as this has been found to give a more satisfactory day indication. The colours are obtained by inserting screens in the units as required.

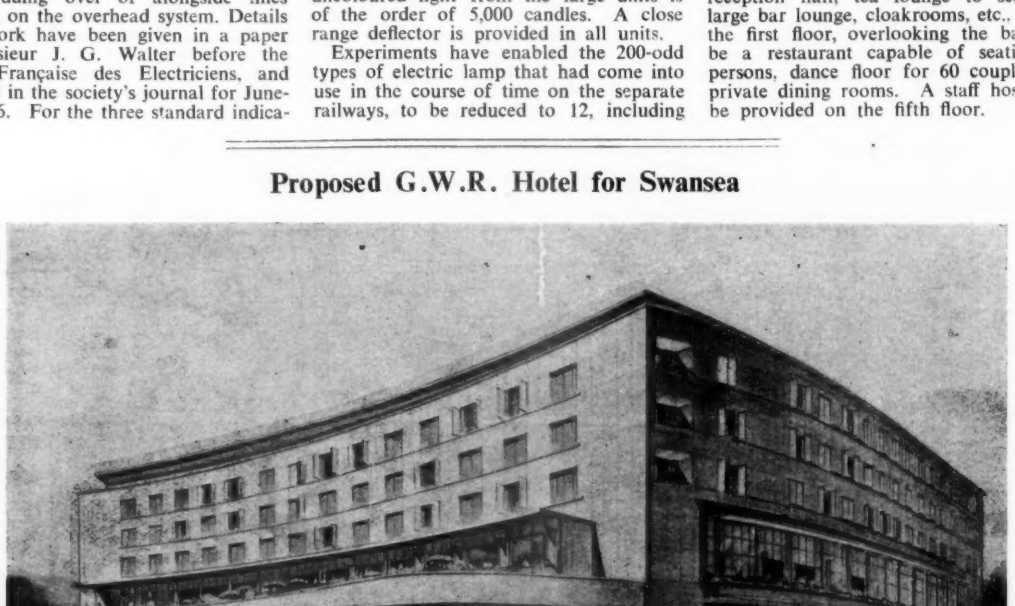
Each unit has two ventilator openings. Ordinarily, the vertical spread of the beam is very small, about 1·5 deg. Horizontal spreads of 4, 10, and 20 deg. are arranged for, the limit point corresponding to that where the light intensity is not more than 50 per cent. of the figure in the axis of the beam. The axial beam intensity with uncoloured light from the large units is of the order of 5,000 candles. A close range deflector is provided in all units.

Experiments have enabled the 200-odd types of electric lamp that had come into use in the course of time on the separate railways, to be reduced to 12, including three used with various arrangements of electric lighting in mechanical signals, adapted to power supply from mains or trickle-charged accumulators, or, for mechanical signals at some locations, from primary cells. The shades of glass used in the colour screens were agreed on in 1936, when the new code of signal aspects, eliminating the white light for "proceed," was accepted, and experience since has confirmed the selection, but it is recognised that improved processes of manufacture may lead to the desirability of introducing some little modification into the specifications.

Although all the essential details of construction now have been settled for future installations throughout the S.N.C.F. lines, a certain freedom has been left to the manufacturers, especially in the actual optical system. Constructional variations will be acceptable provided the means of securing the system to the face of the containing box are standard, and, of course, that its photometric properties conform to specification. In this way it is hoped to reconcile standardisation with facilities for any developments likely to be serviceable. There are at present 92,000 signals in use. Of these, 11,000 are light signals, another 11,000 are power-operated signals of mechanical types, and the rest are manually-operated.

G.W.R. HOTEL FOR SWANSEA.—As soon as circumstances permit, the Great Western Railway is to provide Swansea with a new hotel, with accommodation for 171 resident guests, each bedroom having its own bathroom and toilet. The hotel will have six floors, and 60 per cent. of the bedrooms and public rooms will face the sea. All rooms will be on the telephone through a private exchange. On the ground floor, there will be a spacious reception hall, tea lounge to seat 115, large bar lounge, cloakrooms, etc., and on the first floor, overlooking the bay, will be a restaurant capable of seating 190 persons, dance floor for 60 couples, and private dining rooms. A staff hostel will be provided on the fifth floor.

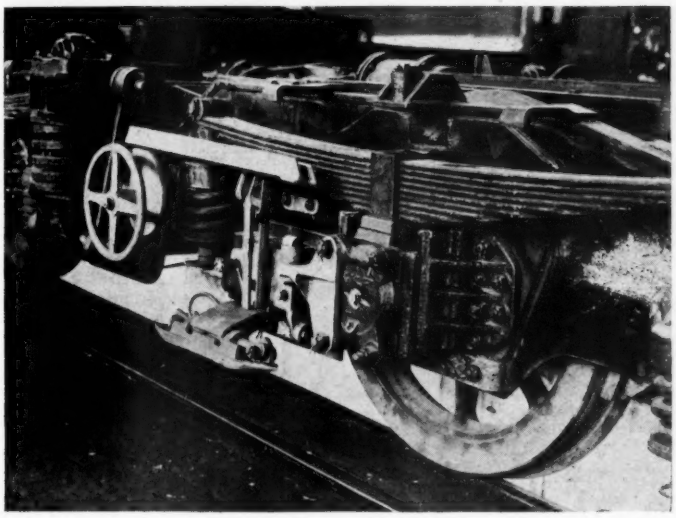
Proposed G.W.R. Hotel for Swansea



An impression of the proposed Swansea hotel which will accommodate 171 *resident guests and of which* 60 *per cent. of the bedrooms and public rooms will face the sea*

London Transport Shoegear Developments

Spring-borne shoes with handwheel adjustment



Suspension and handwheel adjustment of positive shoe

SEVERAL experiments with shoegear have been made recently by London Transport on railway rolling stock, including substitution of wooden shoebeams by steel tubes, and a spring-borne positive shoe (see our September 13 and December 6, 1946, issues). A new arrangement now applied on a Metropolitan Line coach not only provides spring-borne shoegear, but enables all shoes to be withdrawn from, and held clear of, the current rail by the operation of one handwheel.

Each shoe is carried on a rocking link, the pivot bracket of which is attached to the truck frame through insulation. The pins pivoting the shoe on the link, and the link on its bracket, are horizontal and parallel to the longitudinal axis of the truck. The shoes thus are free to rise and fall with their collecting faces always parallel to the conductor rail.

In order to lift the shoes clear of the current rail, or to limit the fall of the shoe when there is no current rail under it, laminated balata straps are attached to the rocking links and to a system of levers.

Above each positive shoe position is a horizontal beam, pivoted, parallel to its own axis, on the bogie frame. One end of this beam rests on a stop on an axlebox; the beam thus remains at the same height above the running rail irrespective of the spring deflections. Thus, by attaching the balata strap supporting the shoe to suitable points on the beam and rocking links, the shoe position relative to the running rail is independent of the truck frame height.

Handwheels connected together by a shaft carried in bearings on the truck frame are provided on each side of the bogie. To this cross-shaft are attached cams which engage with the beams. With the shoes in the "down" position, the cams are clear of the beams. Rotation of the cams through 270 deg. raises the beams clear of the axlebox stops and the shoes clear of the current rails.

The balata strap on the negative shoe rocking link is attached to a crank on a hollow shaft which embraces the handwheel cross-shaft. This hollow shaft is rotated, through a link and a crank, by upward movement of either beam. The minimum negative shoe height above running rail level thus is controlled by the higher of the two beams, and the shoe is raised clear of the conductor rail when the beams are raised by the rotating cams.

To avoid excessive forces being applied to the hollow shaft, or to the beams, when there is unequal spring deflection on the two sides of the bogie, some lost motion is incorporated in the linkage between the beams and the shaft. It will be appreciated that, while a shoe is on a current rail, the balata straps are loose and carrying no part of the weight.

Adjustment is provided on the anchor points of the straps to accommodate variations in strap lengths and wear on shoes. Provision is made also for adjusting the height of the support points on the axleboxes to allow for different wheel diameters. This retractable spring-borne shoegear is being tried out as a possible prototype for the 143 new cars now under construction and the 82 cars to be modified to run with them on the District and Metropolitan Lines of London Transport.

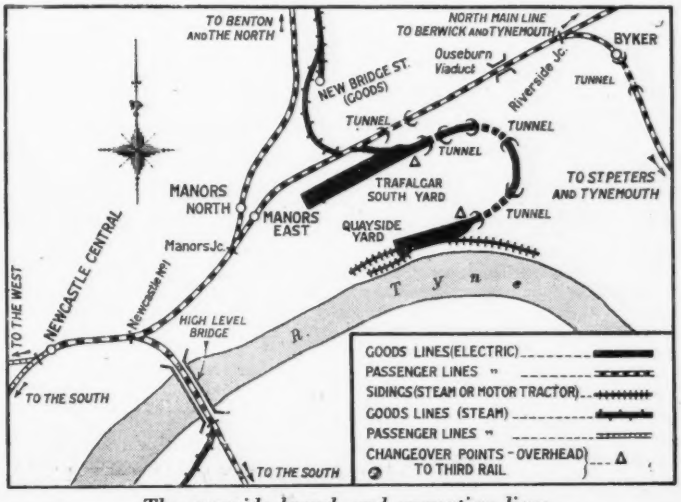
The Newcastle Quayside Branch

IN the U.S.A., the conversion of sections of main-line railway to electric traction in earlier years was confined very largely to long tunnel sections where steam operation was extremely difficult. The only example of this kind in Great Britain is provided by the quayside branch at Newcastle of the old North Eastern Railway, to which brief reference was made in an editorial note in our issue of January 3 on page 3.

Powers for a ½-mile branch from the Manors to the quayside, Newcastle, were granted by an Act of 1845, but were not exercised in the depression which followed the Railway Mania. By another Act, of July 28, 1863, the North Eastern Railway Company was authorised to construct a branch connecting its railway with the quayside at Newcastle, to which was scheduled an agreement with the Newcastle Corporation. This line, which was opened for goods traffic on June 1, 1870, was the only new line added to the North Eastern system in that year. Although short and only single line, it was very costly.

It is a nearly semi-circular line, not quite a mile in length, running through tunnels and open cuttings on gradients of 1 in 27 and 1 in 30, to lose the height between the main railways in Newcastle and the riverside districts. The branch was built from the old cattle dock at the Manors Station to the quayside, near the Hamburg Wharf, where it was joined by a line laid along the quay by the Newcastle Corporation. It was worked by two Manning Wardle six-coupled saddle tank engines, and two ordinary goods engines built by R. & W. Hawthorn and converted into tank engines.

The tunnel sections on steep gradients



The quayside branch and connecting lines

were particularly unsatisfactory for steam traction, and the atmosphere was foul. Electrification was decided on when the Newcastle suburban lines were being converted, and electric traction began in June, 1905, but using overhead wires, excepting through tunnels of insufficient clearance, where third rail was adopted. The current is 630 volts d.c., and the two locomotives supplied by the British Thomson-Houston Company (without dead-man handle, and staffed by two men) are still in use. The branch deals with traffic to and from the quay owned by the Newcastle Corporation, and warehouses adjoining it. During the war, it handled very heavy traffics, with the record of 447 wagons in one working day.

The principal dimensions of the two electric locomotives are as follow:—

Length over buffers	37 ft. 11 in.
Truck centres	20 ft. 6 in.
Truck wheelbase	6 ft. 6 in.
Width overall	8 ft. 8 in.
Height to cab roof	11 ft. 9 in.
Wheel diameter	3 ft. 0 in.

These locomotives are of double-bogie type with steeple cabs. They have Brush trucks, and are fitted with four GE 55 motors, each developing 150 h.p. The locomotives are each capable of hauling a maximum load of 160 tons, including a special 20-ton brake van, up the steep gradients of the branch at a speed of 10-15 m.p.h. Originally, a bow collector was mounted on the bonnet in front of the cab windows at one end, but this has now been replaced by a pantograph on the cab roof, which is raised and lowered by a handle that passes through the roof. Third rail shoes are fitted on each side, with a pair of knife switches inside the cab for isolating the shoes and the pantograph.

Electrification Proposals in Austria

Improved traffic capacity of main lines in a 1,230-mile programme will expedite international trains

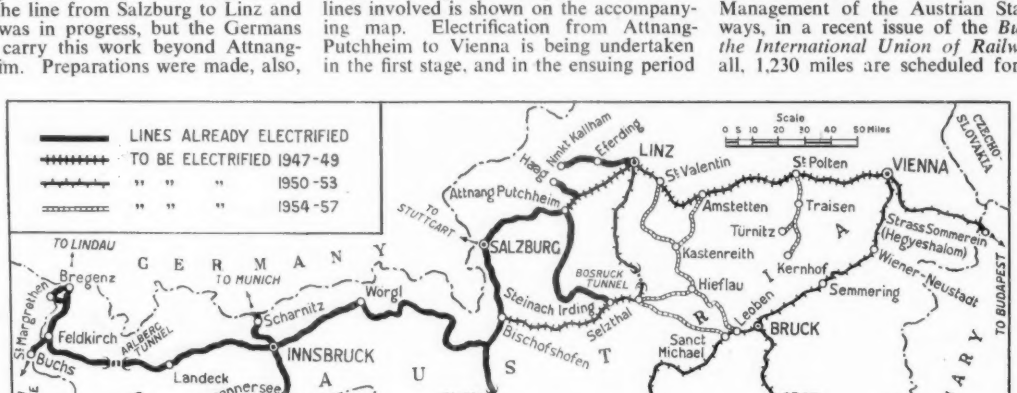
AN extensive electrification programme was undertaken by the Austrian Federal Railways after the first world war, in view of the coal supply difficulties which then existed. Work was carried on continuously until the annexation of Austria by Germany in 1938. At that time, electrification of the line from Salzburg to Linz and Vienna was in progress, but the Germans did not carry this work beyond Attnang-Putchheim. Preparations were made, also, for extending the electrification of the Tauern line southward from Spittal-Millstättersee to Villach, although no overhead equipment was erected.

At the end of the recent war, conditions in respect of coal supply similar to those obtaining some 25 years earlier were experienced again, and an extensive plan has been drawn up for further electrification of main and subsidiary lines. The new proposals will have their effect upon the working of international traffic through Austria, for they include the electrification throughout of routes crossing the country from east to west, and from north to south, and connecting at the frontiers with the electrified lines of neighbouring countries. Special benefit will be experienced from the extension of electrification westwards from Attnang-Putchheim to the Hungarian frontier at Strass Sommerein, as the capacity of this section to handle heavy international passenger and goods trains will be increased considerably. At the present time, severe gradients between Linz and Amstetten, and in the neighbourhood of Vienna, place heavy restrictions on the speed and weight of trains that can be operated by steam locomotives.

The electrification programme is divided into three stages, and the dates between which it is hoped to complete work on the lines involved is shown on the accompanying map. Electrification from Attnang-Putchheim to Vienna is being undertaken in the first stage, and in the ensuing period this will be extended to the Hungarian frontier. There will then be continuous railway electrification extending over approximately 870 miles from Geneva and Basle to Budapest. Continuous electric traction will be available between Stuttgart and Budapest *via* Salzburg.

Several important lines crossing the country in a north-south direction also are to be electrified. Conversion of the section between Spittal-Millstättersee, Villach, and the Italian frontier, in the first stage of the programme, will bring electric traction to the second point of connection between the Austrian and Italian railways, at Tarvisio. (The Brenner route was electrified in 1930). The second stage of the plans will see conversion of the north east-south west line from Vienna to Klagenfurt, Villach, and Assling, thus affording another electrified connection with Tarvisio, and with Jugoslavia. Several lines running in a general north-south direction, and crossing the Austrian Alps, are to be dealt with in later stages of the programme, including the extension of electrification from Graz to the Jugoslav frontier at Spielfeld-Strass, providing another all-electric route from Vienna to the frontier. Although the railways of Czechoslovakia in the north, and Jugoslavia in the south, are not electrified, the use of electric traction on the trans-Alpine lines across Austria will increase the traffic capacity of routes from Poland and Czechoslovakia to Trieste.

The electrification programme was described in detail by Mr. Alexander Koci, Chief Technical Advisor to the General Management of the Austrian State Railways, in a recent issue of the *Bulletin of the International Union of Railways*. In all, 1,230 miles are scheduled for conversion, representing approximately 50 per cent. of the whole of the State Railways system. The lines concerned, however, handle some 75 per cent. of the total traffic of the State Railways. In addition to the routes of international importance already mentioned, considerable electrification of suburban and local lines in the Vienna district is projected, mainly in the later stages of the programme.



Extent of the present and projected electrified lines in Austria

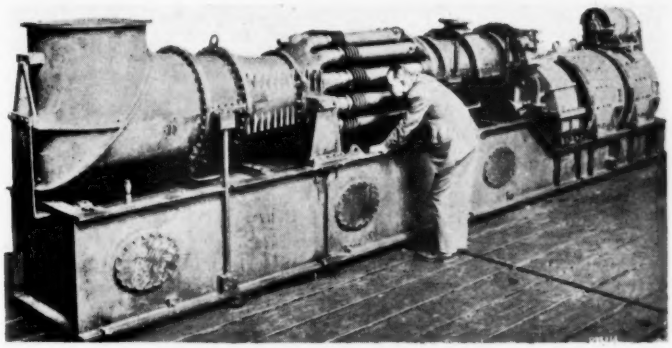
BRITISH INSULATED CALLENDER'S NEW FACTORY.—To meet urgent Post Office requirements at home and abroad, and to increase production on essential telecommunication equipment, British Insulated Callender's Cables Limited has acquired a new factory at Melling, near Liverpool, which will go into production almost immediately. This step became necessary because of serious delays in the building of a new factory on the Kirkby Trading Estate due to shortages of materials.

Gas Turbine Drive for Electrical Generator*

A 2,000-h.p. set with open-circuit turbine

By Thomas J. Putz

Manager, Gas & Locomotive Turbine Section, Steam Division, Westinghouse Electric Corporation



View of installation from exhaust diffuser end

AN experimental 2,000-h.p. gas turbine generator set that weighs only 19 lb. per h.p., and starts in 1½ min. or less, has been developed by the Westinghouse Electric Corporation, South Philadelphia, for industrial and locomotive applications. Occupying only ¼ cu. ft. per h.p., its light weight, compactness, and quick starting and loading response make possible, among other applications, a gas turbine-electric locomotive less than half the length and two-thirds the weight of its equivalent diesel-electric unit.

The simple open-circuit gas turbine burns bunker "C" fuel oil to compensate economically for an expected thermal efficiency of 20 per cent. at full load, and operates at a top temperature of 1,350° F. (732° C.)—the maximum practical temperature without resort to cooling using currently available materials. The open cycle, consisting of only a compressor, combustion chambers, and turbine, is used in order that operating experience on these major components may be acquired quickly, and the useful output is absorbed by a double-armature d.c. traction-type generator connected to the turbine through a single reduction gear. Tests to date indicate smooth mechanical performance.

The possible applications of such a simple open-cycle gas turbine are numerous. As a locomotive prime mover it can be built in large power units, and would require no cooling water. In power stations, this type of gas turbine lends itself particularly to use as a standby unit on the ends of transmission lines for peak service.

In operation, air is taken in by the compressor through the inlet metering nozzle and silencer, and compressed to pressures of 30 to 75 lb. per sq. in. absolute, depending on the load carried. Fuel oil is mixed with the compressed air and burned in the combustion chambers, the amount of fuel burned being controlled to limit the temperature of the gases to between 700° F. and 1,350° F. at the combustion chamber outlets. The hot gases are expanded through the power-producing turbine, and the resultant exhaust gases pass through a diffuser, elbow, and silencer to the atmosphere.

The turbine develops approximately 6,000 h.p., of which 4,000 h.p. is used to drive the compressor. The remaining 2,000 h.p. is the useful output delivered to the d.c. generator. The full-load speed of the turbine and compressor is 9,200 r.p.m., giving a generator speed of 1,200 r.p.m.

Details of Components

The complete assembly measures 26 ft. long, 3 ft. 6 in. wide, and 6 ft. high. Components are arranged from one end to the other in the order of exhaust diffuser and elbow, gas turbine, combustion chamber, compressor, single reduction gear, and d.c. generator. This straight-line arrangement saves piping, space, and weight, and keeps pressure drop to a minimum. The total weight of 38,000 lb. is divided approximately in the proportions of one third to the turbine, compressor, combustion chambers, and gear; one-third to the bedplate and accessories; and one-third to the d.c. generator.

The compressor is of the axial flow type, designed to pass 25,000 cu. ft. per min. of air at a pressure rate of 5:1. It has a maximum speed of 9,200 r.p.m., and the pressure ratio is varied from 2:1 to 5:1, depending on the load carried, by changing the speed. It contains 20 stages of non-symmetric blading, designed so that the major pressure rise occurs in the rotating blades. The latter have a constant tip diameter of 18⅛ in., and vary in height from 3 in. at the inlet to 1½ in. at the discharge.

The blades, unshrouded and profiled at the tip, are forged from 12 per cent. chromium-steel stock similar to that used in steam turbine work. The serrated root fastening is machined in the base by using a formed milling cutter. The blades are caulked into serrated grooves cut in the rotor. Stationary blades are precision cast of 18-8 stainless steel, and are caulked into grooves cut in the cylinder wall. They, too, are unshrouded and profiled at the tip.

The rotor is made of a solid carbon-steel forging, and the cylinder is of welded-steel plate. All air seals on both ends of the compressor are of the labyrinth type. The compressor, being solidly connected to the turbine, has the greater part of its thrust balanced by the turbine thrust. The small remaining thrust unbalance is taken by a standard segmental shoe-type bearing, located on the discharge end of the compressor. The journal bearings are of the pressure-lubricated sleeve type. For test purposes, a bleed connection has been provided after the eighth stage, but it has proved unnecessary and will not be provided on future units.

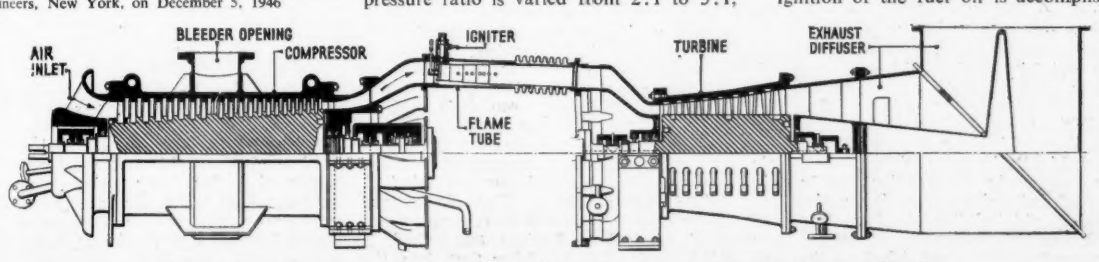
The air flow passes from the compressor through a diffuser, where the velocity is reduced and transition is made from an annular passage to twelve circular passages. The diffuser is made of castings welded together.

The twelve-cell type combustion chambers, 4½ in. dia. and 3 ft. long, have heat releases of approximately $1{\cdot}2 \times 10^6$ Btu/hr/cu. ft./atmosphere. Their casings are made of carbon-steel pipe, with a bellows type expansion joint welded to one end and tapered flanges welded to both ends. The flame tube is made of chromium-nickel alloy sheet, rolled into circular sections which are spot-welded together. Alternate sections are corrugated to provide side-wall cooling.

The fuel oil is injected through air-atomising spray nozzles, held in the end plate of the flame tube. These nozzles maintain good atomisation at low fuel flows. After the oil is ignited, the flame is self-piloting, that is, there is a primary combustion zone within the flame tube to which only a part of the air is admitted and in which a flow reversal is created. In the rest of the combustion chamber the secondary or dilutant air which surrounds the flame tube is mixed with the hot gases from the primary combustion zone. Axial rows of holes in the flame tube have been found to be the most effective in mixing the cold and hot air streams. In this way the cold gases are able to penetrate effectively to the centre of the flame tube, giving very satisfactory temperature distribution at the discharge.

Ignition of the fuel oil is accomplished

* Summary of paper presented before the annual meeting of the American Society of Mechanical Engineers, New York, on December 5, 1946



Internal details of compressor and turbine, showing straight-line layout of units

with acetylene igniters. Twelve combustion chambers were used to expedite full-scale component testing with available facilities.

Gas Turbine Construction

The gas turbine itself consists of eight stages, designed for equal heat drop over the stationary and rotating blades at the mean diameter. The shaft seals used are all of the labyrinth type, and the journal bearings are of the pressure-lubricated sleeve type.

Blading is made of cobalt-chromium-tungsten alloy by the precision casting method. The rotating blade is tapered and twisted, and has a serrated root machined in the base. This machining is accomplished with a form-type grinder which in turn is dressed with a crusher wheel. The stationary blades also are tapered and twisted, and have a single "T" type fastening which is machined by using a carbide tool. All the blading is unshrouded and profiled at the tip.

The rotor is machined from a solid forging of stabilised 19-9 stainless steel, the main section being 14½ in. dia. and 24 in. long. This was the largest forging ever made of this material at the time, and several were rejected before a sound forging was secured.

The cylinder is made of stabilised 19-9 stainless steel, into which are cut grooves for holding the stationary blading. The design was made as nearly symmetrical as possible. The horizontal flanges have been eliminated, and the vertical flanges on the inlet end have been slotted to minimise the effect of thermal distortion on the cylinder walls due to rapid temperature change.

All bolting is made of Westinghouse K-42-B material. For the horizontal bolting, sleeves are used to eliminate the need of a flange and to increase effective bolt length. The bolting problem is difficult, since the gas turbine must operate over wide temperature ranges and must be capable of taking instantaneous changes of from 700° F. to 1,350° F. in going from no load to full load. The design used has proved entirely satisfactory to date. The turbine is positioned with suitable mechanical hinges, arranged to allow for rapid thermal changes while still maintaining proper alignment with the rest of the machinery.

A diffuser and elbow are used to recover a part of the leaving velocity energy, and to turn the gases with a minimum of energy loss. At full load the exhaust velocity from the turbine is approximately 500 ft. per sec., and a substantial portion of this energy is recovered by the diffuser.

The gear is a single-reduction double-helical type. Of particular interest is the pinion, which is made of an alloy steel and has twenty hobbed, flame-hardened, and ground teeth. This type of gearing is similar to that employed on the Pennsylvania Railroad geared turbine locomotive, which has proved successful in service on the line. The experience gained from this gear design points the way to designs carrying twice the load without any appreciable change in weight or size. The gear has pressure-lubricated sleeve-type bearings throughout.

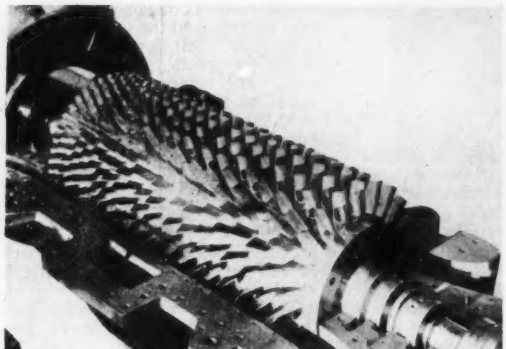
Mounted on the reduction gear is a ½-h.p. turning gear motor which drives through a worm and wheel to a spur pinion, which in turn drives the gear on the main pinion shaft. This keeps the set turning to avoid thermal distortion of the rotating parts at shut-down, and enables quick starting at any time.

A double-armature d.c. generator, operating at 1,200 r.p.m., absorbs the useful power. This forms a loading device with a very wide operating range, and offers an excellent means of testing the set and developing the proper controls.

To reduce noise, silencers were installed both on the inlet and exhaust. The inlet silencer was designed with twelve openings, 7¾ in. x 9 in. x 40 in. long; the exhaust silencer has sixteen such openings. Both were lined with sound-absorbing firebrick.

In the test installation two water rheostats are used to absorb the power output of the d.c. generator. Suitable instruments have been provided to measure accurately the overall performance as well as that of the component parts. Motor-driven, geared-type lubricating and fuel-oil pumps are used. Diaphragm-type control valves are incorporated in the fuel system, and are arranged to provide flexibility in testing fuel controls.

Although the testing of this unit is not yet completed, it appears that it will meet saisfactorily its expected performance. Starting tests have been completed which have shown that with 80-kW. cranking power, the unit can be brought from standstill to operating speed in one minute. If 50-kW. are used, the time is increased to approximately 1½ min.



Compressor rotor mounted in cylinder base, showing coupling to reduction gear

Eight-stage turbine rotor assembled in the lower half of the cylinder

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RENEWAL OF L.M.S.R. FILM PROGRAMME.—Resuming its pre-war policy of portraying by documentary films the part played by the railway in the everyday life of the nation, the L.M.S.R. now has decided to embark on a new programme of film publicity, which will commence this month with the making of six two-reel colour films to be shown in schools, clubs, exhibitions, etc., and also overseas. These six films will show the part played by the L.M.S.R. in our social and economic life, especially in relation to certain selected industries, embracing agriculture, housing, shipbuilding, textiles, iron and steel, and the distribution of food. Four documentary films unfinished at the outbreak of war—"Blackpool," "The Clyde," "Life of an Engine Driver," and "Carrying the Load"—are to be completed. In addition to circuit bookings, the company is to provide 21 16-mm. sound projectors and film libraries for use in its provincial districts.

TRAVELLING EXHIBITION OF ELECTRIC VEHICLES.—A display of electric vehicles, including the Douglas A.C.M. 20-cwt. open-deck truck, and the totally-enclosed 15-cwt. model, has been arranged by the firm of Douglas (Kingswood) Limited, Bristol, through its London distributors, and will be on view at the showrooms of Hovis Limited, 40, Rushey Green, Catford, S.E.6, until May 2. After that date, the display of vehicles will proceed on an extended tour of the country, and by the end of October will have been shown at the premises of various distributors in important centres in England and Northern Ireland.

AEROGRAPH SPRAY-PAINTING EQUIPMENT.—Among the exhibits to be shown by the Aerograph Co. Ltd., Lower Sydenham, London, S.E.26, at the Castle Bromwich section of the British Industries Fair, which will be held next month, will be spray guns for every painting purpose, pressure feed tanks, air transformers and pressure regulators, air compressors, exhaust fans, and petrol-driven and electrically-driven complete portable spray-painting outfits.

Leakage Testing of Automatic Vacuum Brakes

An instrument developed in the L.M.S.R. research laboratories

Compact form of routine inspection instrument in position for testing portion of train on the right

THE automatic vacuum-brake system of a railway vehicle could not in practice be maintained in perfect leak-tight condition. The problem, therefore, becomes one of restricting leakage to a small amount that can be dealt with by the auxiliary air ejector on the locomotive.

It is standard practice for vacuum-brake systems to be tested before all new and repaired vehicles leave the main works, but in service it has not been possible, hitherto, to apply a scientific test at out-stations. For this purpose, some convenient means of leakage testing was needed whereby vehicles could be checked periodically, thus minimising the possibility of brakes failing in service.

In this connection, a portable instrument has been developed in the research laboratories of the L.M.S.R. which can be manipulated by one man, and which shows at a glance whether the rate of leakage into the evacuated brake system is greater or less than a tolerable value. To achieve this object without the use of a clock or stop-watch, it was decided to adopt the principle of a slow, standard leak against which to compare the actual leakage into the brake system of the vehicle under test. Details of the apparatus in its original form are shown in the photographs reproduced below.

The basis of the instrument is the standard leak, and it takes the form of a length of capillary tubing, made of corrosion-resistant metal as used for hypodermic needles, through which air from the atmosphere slowly leaks into a small, evacuated cylinder incorporated in the apparatus. As the outcome of preliminary experiments, the bore of the capillary is of such size that a convenient straight length of tube gives the desired standard leakage, arbitrarily fixed at 2 in. Hg. (from about 21 in. Hg. to 19 in. Hg.) in one minute.

The outer end of the capillary is soldered into a screwed brass plug by which it is sealed into one end of the cylindrical reservoir with the length of tube inside. A filter inside the plug, which is hollow, excludes dust from the air leaking in through the capillary. A valuable feature of the tube is that its leakage rate can be calibrated readily by adjusting its length.

The actual and standard rates of leakage are indicated by a duplex vacuum gauge comprising two separate elements having concentric spindles carrying pointers moving over a single dial. This gauge is mounted, at a convenient angle, on a compact assembly consisting of two vacuum hose couplings with an interposed isolating cock, the spindle of which carries a separate cock whereby the reservoir fitted with the standard leak can be evacuated and subsequently isolated.

One element of the duplex gauge is connected to the "leak reservoir" and has a red pointer; the other element, actuating a black pointer, is connected between the main isolating cock and one of the hose couplings (marked "train") which is always connected to the vehicle under test.

Making the Test

To make a test, the train pipe at one end of the vehicle is closed by its stopper, and the instrument is coupled between the other end and a source of vacuum, which may be an engine, with or without vehicles attached, or a separate mechanical evacuator. The operating handle is moved to the position "create," in which the same vacuum is created in the standard leak reservoir of the instrument as in the brake system of the vehicle. Both pointers of the duplex gauge move to indicate the same maximum vacuum. When this is attained, the operating handle is moved to the "test" position, separately isolating the leak reservoir and the brake system.

A refinement of the phase displacement of the two isolating cocks, or an appropriate method of using the instrument,

(*Continued on page* 429)

Instrument in its original form

Rear view of leakage testing instrument

New Lightweight Coaches in U.S.A.

Combined passenger and baggage coach built by the A.C.F. for the New York Central System

Seats in this new coach are full-reclining and rotating

TWENTY lightweight combined passenger and baggage coaches recently have been delivered to the New York Central System by the American Car and Foundry Company. These coaches were designed to give the best in travel comfort. They were constructed at the St. Charles, Missouri, plant, and were made principally of strong aluminium alloys.

Saving in Weight

The new coach is 85 ft. in length, 16 ft. over side posts, and 13 ft. 6 in. roof height above rail. Through the use of aluminium alloys, the basic weight of the coach represents a saving in weight of approximately 34 per cent. in comparison with equivalent cars of conventional heavy-steel construction. The coach was designed especially to meet the operating requirements associated with the New York Central System.

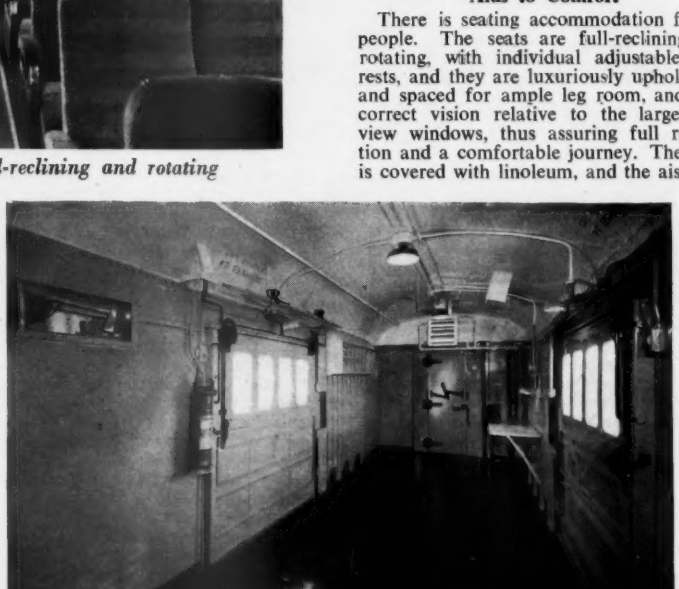
The interior colour treatment of the passenger compartment is attractive in appearance, with rust-coloured wainscoting and rust-coloured linoleum covering on all bulkheads, toilet partitions, etc. This is an attractive feature, also, from the standpoint of maintenance. All other appointments of the interior are painted in a pleasing manner to harmonise with the previously-mentioned colours.

All interior finish is designed to eliminate exposed screwheads and battens. The design of the ceiling is a new departure, being a full-floating type blending harmoniously with the central air diffuser, which is selected to give an even flow of filtered air of the required temperature at all times.

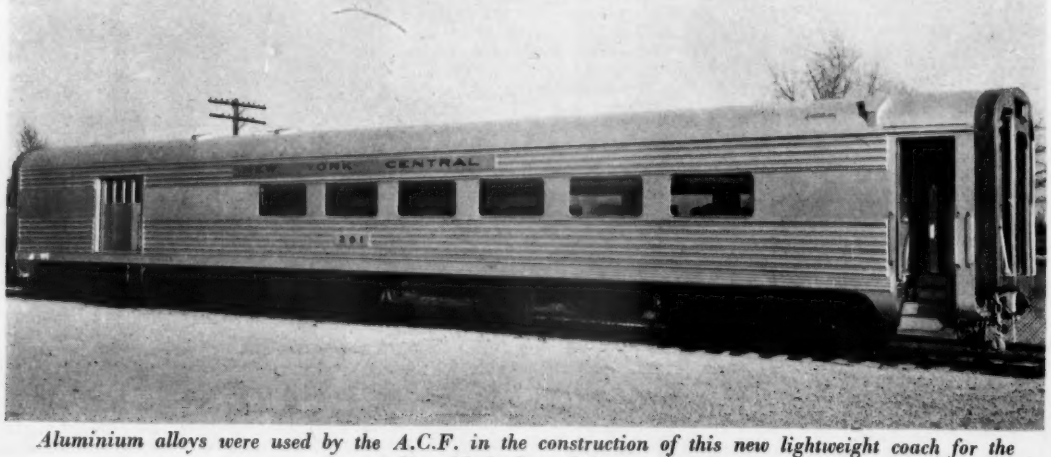
Large luggage racks have been fitted, with individually-controlled reading lights at all seats, recessed in the bottom of the racks. These racks are most convenient and serviceable as well as attractive in appearance.

Aids to Comfort

There is seating accommodation for 48 people. The seats are full-reclining and rotating, with individual adjustable foot rests, and they are luxuriously upholstered and spaced for ample leg room, and give correct vision relative to the large full-view windows, thus assuring full relaxation and a comfortable journey. The floor is covered with linoleum, and the aisle de-



Baggage compartment of the new coach



Aluminium alloys were used by the A.C.F. in the construction of this new lightweight coach for the New York Central System

sign is of contrasting colours, and the main floor of one colour.

The baggage compartment is finished in flat sheets with buff-coloured walls and a white ceiling. It is heated by a unit heater in which a steam coil and blower-fan unit are placed overhead above the end door. It is equipped with letter case, desk, etc., in accordance with New York Central standards.

Exterior Finish

The exterior of the coach embodies A.C.F. anodised aluminium fluted extrusions and snap-on mouldings above and below the windows. The flutings have a satin finish with the exception of one moulding at the side plate, one directly above and below the windows, and one at the side sill, which are finished in a bright polished mirror finish. The four lines of bright-finish moulding give a pleasing contrast to the duller satin finish.

An effective means of closing the ends of the flutings at the doorways and ends of the coach was achieved by the use of anodised satin-finish castings which follow the contour of the mouldings. The ends and roof were painted with aluminium lacquer and blend with the anodised sides.

The coaches were designed to meet the U.S. Post Office as well as A.A.R. specifications for the construction of new passenger equipment. All materials used on the body framing are aluminium alloys, with the exception of the bolsters, cross bearers, and end sills, which are low alloy high-tensile steel. The cast-steel buffer casting extends through the bolster and is secured to the centre sills by riveting. The joint is protected against corrosion by hot zince metallising. Special extruded aluminium-alloy sections are used for many of the framing members.

The side frames are of girder construction. The side sills consist of two members of special extruded aluminium sections. The member which is assembled with the underframe has a vertical web to which the side posts are attached, as well as having integral flanges for supporting the floor. The member assembled with the sides is an aluminium angle riveted in turn to the extruded underframe member. The side plates are aluminium angles riveted together and the side posts are 3-in. aluminium-alloy "Z" shape extrusions.

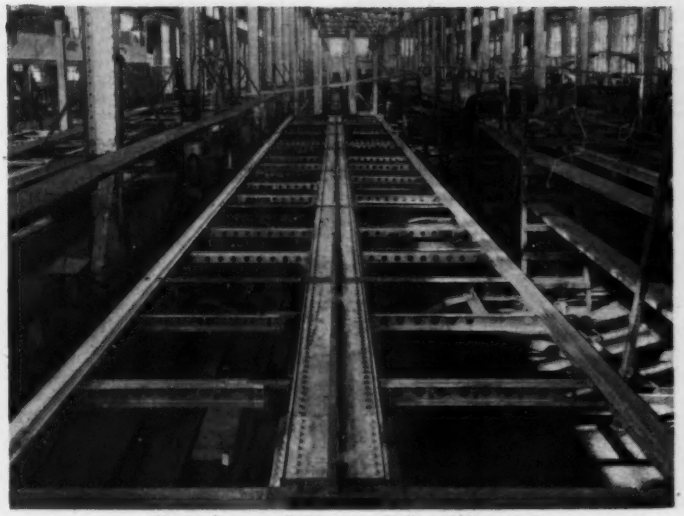
The end-frame construction includes two 8-in. aluminium-alloy step extruded "I" beam sections, with a web thickness in the lower portion to meet A.A.R. shear resistance requirements, and extending into pockets in the buffer casting; likewise supported at the top by anti-telescoping construction consisting of a 10-in. aluminium-alloy channel and a truss-girder construction.

The roof is constructed of 3-in. aluminium-alloy extruded "Z" section carlines with five lines of extruded "Z" section purlines. The roof sheets are of aluminium alloy secured to the framing by aluminium mushroom-head rivets.

Framework

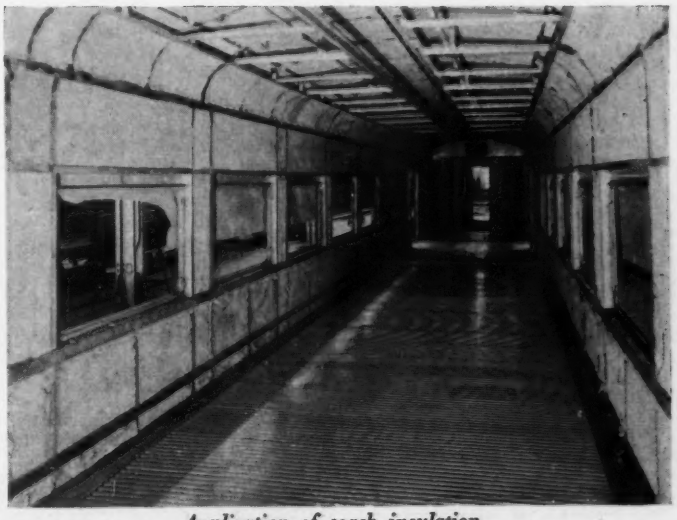
The longitudinal floor stringers are of low alloy high-tensile steel, supported on underframe cross-members. Keystone floor sheet $\frac{3}{4}$ in. high are fitted to the longitudinal stringers. Lightweight composition flooring is applied to a thickness of $\frac{5}{16}$ in. above the keystone. A galvanised false floor is fitted to the bottom of the floor stringers, and extends to, and is secured to, the side sill extrusion and centre sill top cover.

The inside of all outside sheets and the

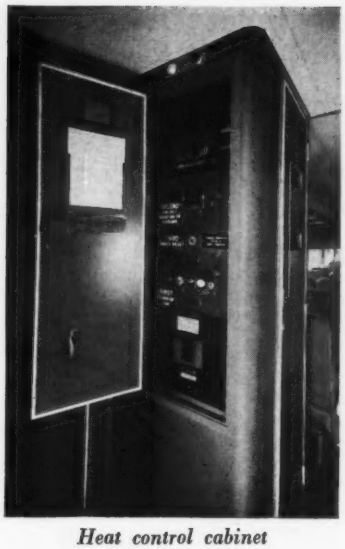


Underframe of the new lightweight coach

Aluminium-alloy framework

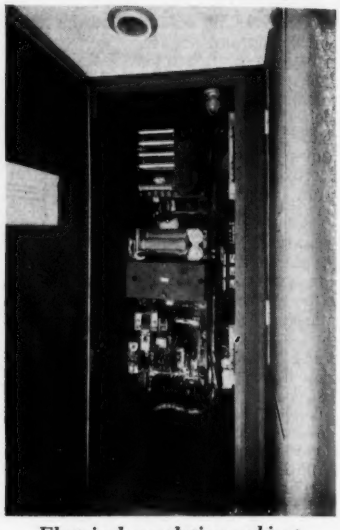


Application of coach insulation



Heat control cabinet

Toilet



Electrical regulation cabinet

outside of the inside sheets were sprayed with Insulmat. Insulation, 3 in. thick, is secured in place with wires in the floor, sides, ends, and roof of the coach. Tape is used to break the metal contact between the framing members and the inside finish.

Both ends of the coach are equipped with end outer closures, inner diaphragms, end curtains, and end gates. The end closures are of stainless steel, with sheet rubber following the outside coach contour, forming a continuous line when the coaches are coupled. The outside wing of the closure is hinged to the centre section, which is supported by suspension rods from the coach body, and the faceplates are held in contact by coil and semi-elliptic springs.

Of the 20 coaches, 16 are equipped with G.E.C. and four with Safety Car Heating and Lighting Company 20 kW. 80-volt generators, driven by Spicer drive with automatic clutch. Batteries are 600 amp. hr. capacity, and the lighting fixtures are incandescent except for the baggage-rack lights, which are 64 volt d.c. fluorescent.

Frigidaire electro-mechanical equipment with Vapor controls supplies conditioned air to the passenger compartment. The conditioned air is distributed uniformly throughout the coach through a continuous air diffuser running the full length of the compartment. Provision has been made for future installation of telephone and radio equipment.

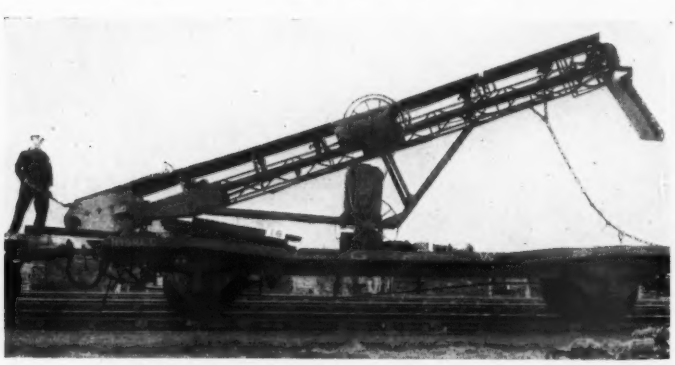
The Vapor heating equipment includes heat-tempering coils in the air-conditioning unit, and unit-fin-type floor heat in the passenger compartment, all thermostatically controlled. An overhead forced-air unit heater is used in the baggage compartment. This heater has adjustable shutters for controlling the distribution of the air. Flexible steam conduits, steam couplers, and washing-water heating fittings are all of the Vapor type. Drinking water in the coach compartment is supplied from an electric water cooler.

The bogies are four-wheel, with 5½ in. x 10 in. journals at the passenger end and 6 in. x 11 in. journals at the baggage end, and the 36 in. rolled-steel wheels are ground after mounting to ensure truly concentric treads. The bogies are of the single-drop equaliser type, with General Steel Castings Corporation alloy cast-steel frames, having pedestals cast integral. Both equaliser and bolster springs are of helical-coil design.

Sound-deafening materials are used abundantly to isolate noises completely from the coach body, principally at the bolster springs, bogie centre plates, and body side bearings, as well as at the moving parts of the coupler and buffer mechanism.

G.W.R. Developments in Maintenance Equipment—2*

Transportable loading machine for loose material



Machine loaded on wagon for transport to site

THE Parker belt loader, manufactured by Frederick Parker Limited, Viaduct Works, Catherine Street, Leicester, is used in yards for loading into wagons loose material such as concrete aggregate, sand, ashes or debris, and is specially fitted with barge boards for handling bricks. The material to be loaded is merely shovelled at ground level on to the rear of the machine, and is carried by the endless belt over the side of the wagon, thus avoiding a high and tiring throw with each shovelful.

The loader weighs 32 cwt., and can be wheeled into any desired position; as it is about 30 ft. long, it has to be placed almost parallel to the track when loading from a nearby pile of material; the illustration shows the small portable chute, which can be fixed to permit of sideways discharge in such circumstances, and which was manufactured at the suggestion of the Great Western Railway. The belt, which is 18 in. wide, runs at about 180 ft. a minute, and the maker claims that with material weighing 100 lb. per cu. ft., it can carry a maximum of about 80 tons in an hour.

The normal discharge height is 11 ft. 6 in., but when mounted on a wagon for transport by rail, the wheels can be removed and the overall height brought within the loading gauge by packing up the ends until the belt is almost horizontal. Alternatively, the machine can be lowered into a high-sided wagon, placed between two empties to act as runners.

Power is provided by a one-cylinder 3½-h.p. Lister two-stroke petrol engine. The type of machine described is only one of a range of various sizes and capacities manufactured by Frederick Parker Limited.

* Part 1 appeared in our issue of April 4

RAILWAY NEWS SECTION

PERSONAL

Brigadier James Storar has been appointed Managing Director of the Antofagasta (Chili) & Bolivia Railway Co. Ltd., and has also joined the boards of its associated companies. He is a Director of the Great Western of Brazil Railway Co. Ltd., Nyasaland Railways Limited, Central Africa Railway Co. Ltd., and Vulcan Foundry Limited.

Mr. F. H. D. Page, O.B.E., M.Inst.C.E., who retired on April 15 from the position of Signal & Telegraph Engineer, Great Western Railway, was educated at the Royal Grammar School, Worcester, and was afterwards a pupil with McKenzie & Holland Limited. In 1903 he joined the Civil Engineer's staff of the Taff Vale Railway, and three years later entered the Signal Engineer's Office, G.W.R., as a draughtsman; he became Interlocking Surveyor in 1912 and Assistant in 1923. To facilitate control of the signal and telegraph work, particularly in connection with the absorption of the Welsh railways, Mr. Page was appointed Divisional Signal & Telegraph Engineer, Cardiff, in 1925, and three years later was transferred to Reading as Assistant to the Signal Engineer. In May, 1935, he was appointed Assistant Signal Engineer, and, in February, 1936, Signal & Telegraph Engineer. Mr. Page was directly in charge of the installation of the first route setting signals in this country, first at Winchester and then at Newport. He was also directly in charge of the power signalling installation at Cardiff. The principal mechanical signalling installations for which he was responsible were those at Cardiff (Queen Street), Swansea, Newton Abbot and Exeter. During his period of office there has been a great extension in the traffic telephone control network and also of the trunk telephones and the modernisation of telephone facilities in the North Wales area. Among other works of interest was the installation of intermediate signals in the Severn Tunnel. Mr. Page was a member of the Main Technical Committee for Air Raid Protection for Railways, jointly with the Ministry of Transport, Air Ministry and Home Office. He was Chairman of the R.C.H. Standardisation of Colour Light Signalling Sub-Committee. Mr. Page was also a member of the Lighting Committee set up jointly with the Ministry of Transport, Air Ministry and Home Office. He was made an O.B.E. in the King's Birthday Honours in 1943.

Mr. F. H. D. Page

Signal & Telegraph Engineer, Great Western Railway, 1936-47

Mr. A. W. Woodbridge, M.Sc., Assistant to Signal & Telegraph Engineer, Great Western Railway, who, as recorded in our April 4 issue, has been appointed Signal & Telegraph Engineer, joined the Signal & Telegraph Department in 1926 as a premium pupil, after his technical training at the City & Guilds Engineering College, where he obtained the degree of M.Sc. (London University) in Engineering. After completing his practical railway training he took a responsible part in the installation of a number of large signalling schemes, including the Paddington to Southall power and light signalling installations, and the large power signalling scheme at Bristol (Temple Meads). During the recent war Mr. Woodbridge was responsible to the Signal & Telegraph Engineer for the co-ordination of the works authorised by various Government departments for wartime traffic; and since 1944 he has been engaged on the development of post-war reconstruction schemes.

Mr. A. W. Woodbridge

Appointed Signal & Telegraph Engineer, Great Western Railway

Mr. P. L. Beare, previously Chief Clerk, Transfer Office, Secretary's Department, Irish Transport Company, has been appointed Secretary of the Irish Railway Clearing House.

Mr. J. P. Reynolds has been appointed Chairman of the Scottish Machine Tool Corporation Limited, in succession to the late Sir Harry Greer, and will continue in his capacity as Managing Director.

Among decorations conferred by the President of the U.S.A., for the wearing of which the King has granted unrestricted permission, is that of the Legion of Merit, Degree of Officer, on Colonel Richard Danvers Waghorn, C.B.E., late R.E.

Mr. G. H. Latham is to succeed Sir James Lithgow as President of the British Iron & Steel Research Association.

We regret to record the death on April 16, at the age of 67, of Mr. Owen Glynne Roberts, C.B.E., F.C.I.S., who retired at the end of 1940 from the positions of Secretary to the London Midland & Scottish Railway Company, Assistant to the President and Secretary to the Executive Committee. He was a son of the late Mr. Owen Roberts, J.P., of Holyhead, and was born on January 15, 1880. He was educated at Park School, Holyhead, and joined the L.N.W.R. in 1896. In 1900 he became Staff & Confidential Clerk to the Irish Traffic Manager. In 1902 he was appointed Outdoor Clerk, Outdoor Goods Manager's Office, Manchester, and he was made an Outdoor Assistant in 1908. Mr. Glynne Roberts went to Euston in 1911, and, after serving three years on the Chief Outdoor Goods Manager's staff, was appointed Chief Staff Clerk to the Chief Goods Manager. In 1917 he became Assistant Head of Staff Department, General Manager's Office, and in 1918 was re-transferred to the Chief Goods Manager's Office as Chief Clerk. In 1920 he was appointed Chief Clerk, and in 1922 Indoor Assistant, to the General Manager; and he became Assistant to the General Manager in 1923, when the amalgamation took place. In 1927, when the L.M.S.R. adopted the executive committee form of management, Mr. Glynne Roberts was appointed Assistant to the President. He became Secretary to the company in 1929, retaining his post of Assistant to the President. He was made an O.B.E. for railway services during the 1914-18 war, and a C.B.E. to commemorate the centenary of opening of the London & Birmingham Railway in 1938. Mr. Glynne Roberts was a brother of Mr. R. D. Roberts, who retired at the end of 1945 from the position of District Goods & Passenger Manager, Chester, L.M.S.R., and of the late Captain Ivor Roberts, who retired in 1934 as Marine Superintendent & Harbourmaster, Holyhead, L.M.S.R., and who died in 1944.

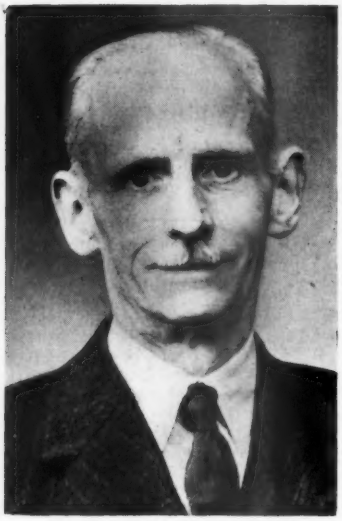
Elliott [*& Fry*

The late Mr. O. Glynne Roberts

Secretary, London Midland & Scottish Railway Company, 1929-40; Assistant to the President, 1927-40

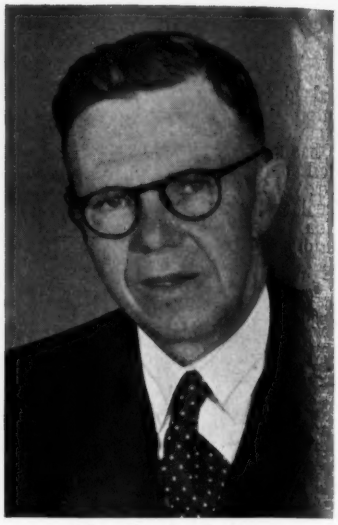
Brigadier A. E. M. Walter

Appointed an Inspecting Officer of Railways, Ministry of Transport



The late Mr. F. R. Reid

Secretary, Irish & English Traffic Conference, 1937-47



Mr. W. A. Anderson

Appointed Assistant Secretary for Railways, New South Wales

Brigadier A. E. M. Walter, C.B.E., who, as recorded in our March 14 issue, has been appointed an Inspecting Officer of Railways in the Ministry of Transport with effect from January 28 last, was released from his appointment as Controller-General of the Inland Water Transport Branch, Control Commission for Germany, in December, 1946. During the early stages of the recent war he was Deputy Assistant Director of Transportation in the United Kingdom and in the Middle East. Later he was transferred to the British Army staff in Washington responsible for the design and provision of transportation stores obtained under Lend-Lease and for their export to operational theatres. After service as Director of Transportation in South East Asia Command, he returned to Europe as Director of Ports & Inland Water Transport, 21 Army Group, and was commander of the port construction force which built the artificial port of Mulberry B. Before the war Brigadier Walter had considerable experience in all branches of electrical, mechanical, and railway engineering. He will continue his appointment as British *Délégué Suppléant* on the Central Rhine Commission.

We regret to record the death on March 22, at the age of 71, of Mr. George T. Coleman, General Superintendent of Transportation, Montreal, Canadian Pacific Railway, 1936-42, and a brother of Mr. D. C. Coleman, a Director, and lately Chairman & President, of the C.P.R.

An Indian Railways Inquiry Committee has been set up to make a general examination of the railway system in India, and in particular, it is reported, the best use of manpower and material and the revision of the rates and fares structures. The members are: Mr. K. C. Neogy (President); Mr. Mohd Yamin Khan; Professor Humayun Kabir; Mr. I. S. Puri, Additional Financial Commissioner of Railways; Sir George Cuffe, General Manager, Bombay, Baroda & Central India Railway, who proceeds next month on leave preparatory to retirement; Mr. J. N. Nanda, General Manager, Nizam's State Railway; and Mr. Balentine, an American expert.

Mr. F. R. Reid, Secretary of the Irish & English Traffic Conference, whose death was recorded in our April 11 issue, had held that position since 1937. Mr. Reid joined the Midland Great Western Railway, Ireland, in 1907. On the amalgamation in 1924 he was appointed Cross-Channel Rates Clerk to the Chief Rates Assistant, Great Southern Railways, and he represented that company at meetings of the Irish & English Traffic Conference and other conferences held in Ireland and Great Britain. In 1937 he was appointed Secretary to the Irish & English Traffic Conference, which position he held to the time of his death. Mr. Reid was recognised as an authority on the complicated subject of through rates, both goods and coaching, between Ireland and Great Britain.

L.N.E.R. Appointments

Mr. G. B. Barton, Engineer (London), to be Assistant Chief Engineer, in succession to Mr. F. E. Harrison, who is retiring on May 21.

Mr. J. I. Campbell, Assistant Engineer (Construction), London Area, to be Engineer (London).

Mr. J. Blair, Mechanical Engineer (Outdoor), to be Acting Mechanical Engineer, Scotland, in succession to Mr. J. F. Harrison, recently appointed Acting Assistant Chief Mechanical Engineer.

Mr. R. S. Hart-Davies, Assistant to Chief Mechanical Engineer (Locomotive & General), to be Acting Mechanical Engineer (Outdoor), *vice* Mr. Blair.

Mr. C. W. Murphy, Area Refreshment Room Supervisor, Kings Cross, to be Assistant Refreshment Room Services Superintendent.

Mr. R. W. Rose, Assistant to Locomotive Running Superintendent, North Eastern Area, to be Assistant to the Divisional General Manager, Scottish Area.

Mr. W. G. Nicolson, Senior Assistant (Works), Chief General Manager's Office, to be Assistant Rolling Stock Controller.

Mr. L. B. Marson, Second Assistant (Works), Chief General Manager's Office, to be Senior Assistant (Works), Chief General Manager's Office.

Mr. C. Taylor, Deputy to the Secretary of the L.N.E.R. Savings Bank, to be Secretary of the L.N.E.R. Savings Bank, in succession to Mr. E. Hayter, who has retired.

Mr. W. A. Anderson, who has been appointed Assistant Secretary for Railways, New South Wales, in succession to the late Mr. J. H. R. Wakefield, entered the N.S.W. Department of Railways as a junior clerk in 1913. He saw war service from September, 1915, to June, 1919. He was appointed Information Officer for the department in 1936, and subsequent positions held by him included those of Information & Finance Officer, Public Relations Officer, and Administrative Assistant. During the recent war Mr. Anderson accompanied the Commissioner for Railways when attending the meetings of the Commonwealth Land Transport Board and the War Railway Committee.

Mr. R. T. Pardoe has been appointed Sales Manager of the British Electric Transformer Co. Ltd.

Sir Murray Morrison, who has been a Director of the British Aluminium Co. Ltd. since 1927, and has been in the company's service for 52 years, has resigned from the board. He retired from the Managing Directorship two years ago, and has retained the Deputy-Chairmanship since that date. Mr. Geoffrey Cunliffe has been appointed Deputy-Chairman, retaining his office as a Managing Director. Mr. G. B. Aldridge retires from the board.

L.P.T.B. Staff & Staff Welfare Department

A re-allocation of duties in the Staff & Staff Welfare Department, L.P.T.B., has taken place subsequent to the retirement of Mr. A. C. Ingram, Staff Officer. Mr. E. R. Drake becomes Staff Officer, responsible to the Chief Staff & Welfare Officer for, among other matters, those relating to the executive, clerical, technical and control staffs. Mr. R. J. Hitchcock, Secretary to the Chairman, is appointed Establishment Officer, responsible to the Chief Staff & Welfare Officer for, among other matters, those relating to the wages and supervisory staffs. Mr. S. E. Raymond, Principal Executive Assistant, will act as Assistant to the Chief Staff & Welfare Officer for such special duties as may be delegated to him, and will be responsible to that officer for policy matters relating to education, recruitment and training.

New Vessels for Newhaven-Dieppe Service

The "Londres" placed in service by the French National Railways is more powerful than any predecessors on the route

On April 19 a new cross-Channel steamer, the *Londres*, was introduced by the French National Railways on the Newhaven-Dieppe service. This vessel, which was ordered in 1939, was nearing completion at the Graville yard of the Forges et Chantiers de la Mediterranée when the German army invaded France. She was requisitioned and equipped as a minelayer, but was recovered intact when the Germans capitulated, and has since been reconverted. The *Londres* is a sister vessel to the *Arromanches*, launched in March last year.

The estimated speed of the *Londres* is 25 knots, which is higher than that of her predecessors whether sailing under the French or the English flag, and her main characteristics are as follow:—

Overall length	309 ft.
Beam	40 ft. approx.
Maximum draught	10 ft. 4 in.
Displacement	1,975 tons

The dimensions of the *Londres* are the largest permissible in present circumstances for boats on the Newhaven-Dieppe service. The boilers are of the Penhoet type, similar in design to those fitted in the *Normandie*, and noted for their steaming capacity. They are oil-fired, and have a working pressure of 384 lb. per sq. in. All steam is superheated and, at a temperature of 620° F. with only one boiler working, enough steam is generated to give a speed of 22 knots.

The propelling machinery consists of two symmetrical sets of turbines driving twin screws through single-reduction gearing. Steam is admitted into the turbines at a pressure of 337 lb. per sq. in. at a temperature of 644° F., and they develop a maximum of 22,000 h.p. at 400 r.p.m. The *Londres* therefore is much more powerful than any of her predecessors (of 15,000-h.p.), and has a considerable reserve of power.

The vessel carries a maximum of 1,450 passengers, and is a one-class ship. The 14 cabins, of which two are large *de luxe* apartments, provide 40 sleeping berths. The dining saloon seats 124 passengers, and there are two bars, and various saloons fitted with sleeping berths and armchairs. Air-conditioning is provided throughout on the Thermotank system. A new type of davit has been installed on the boat deck, so that when sea conditions permit the boats can be raised to 6 ft. above deck level, providing more space and giving a better view. Safety devices include fireproof bulkheads, automatic detection and alarm in case of fire, numerous fire-extinguishers, and a radar installation.

On April 18 the *Londres* arrived at Newhaven, where a reception and tea were held on board. Among those who had crossed in her from Dieppe were Sir Eustace Missenden, O.B.E., General Manager, Southern Railway, and Lady Missenden, together with Mr. Lemaire, General Manager of the French National Railways. The railway officers and guests who attended the reception at Newhaven included the following:—

Southern Railway: Sir Eustace Missenden, General Manager, and Lady Missenden; Mr. H. A. Short, Deputy Traffic Manager; Mr. R. P. Biddle, Docks & Marine Manager, and Mrs. Biddle; Mr. S. W. Smart, Superintendent of Operation; Mr. C. Grasemann, Public Relations & Advertising Officer; Mr. J. L. Harrington, General Assistant to General Manager, and Mrs. Harrington; Mr. R. H. Hacker, Continental Superintendent; Mr. R. E. Sinfield, Assistant Continental Superintendent; Mr. A. M. Newbold, Southern Railway Agent in Paris; Mr. R. Cardy, Divisional Marine Manager, Newhaven; Mr. J. Bridger, London Central Divisional Superintendent; Mr. K. R. Ellson, Public Relations Assistant; Mr. F. W. Luff, Marine Engineer, Newhaven.

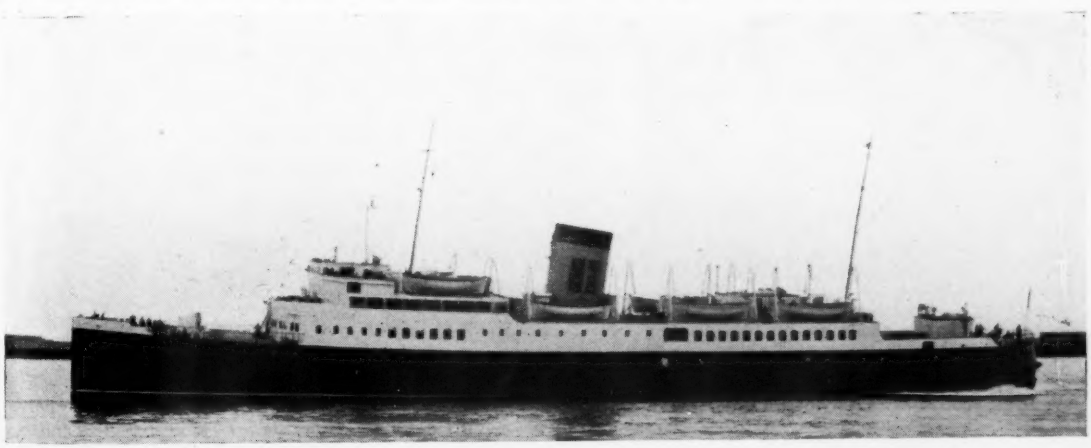
French Embassy in London: Mr. Gauthier.

French National Railways (and associated interests): Mr. Lemaire, General Manager; Mr. Porchez, Chief Civil Engineer; Mr. Dargeou, Chief Operating Superintendent; Mr. Marois, Commercial Superintendent; Mr. Soulard, Traffic Manager, Western Region; Mr. Dubost, Commercial Superintendent, Western Region; General Olivier, Steamship Superintendent; Mr. Barrier, Chief Marine Superintendent; Commandant Bringuier, Marine Department; Mr. Goursat; Mr. Dorges and Mr. Anduze-Faris, French Ministry of Public Works; Mr. Fayollet, Local Manager, Dieppe, and Mr. Chevalier, Société des Forges et Chantiers de la Méditerranée.

French Railways Limited, London: Mr. le Mattre, Managing Director; Mr. Taine, Secretary; Mr. E. H. Pearne, Assistant.

Travel Agencies: Mr. E. Huskisson, Thos. Cook & Son Ltd.; Mr. Delaney, Workers' Travel Association; Mr. J. W. Frame, Frames Limited; Mr. A. W. Cooke, Dean & Dawson Limited; Mr. A. E. Franklin, Wayfarers; Mr. Cleaver, Sir Henry Lunn Limited.

Other Guests: Mr. R. R. Goodison and Mr. E. W. Godfrey, Ministry of Transport; Mr. W. R. Perks, Home Office; Mr. A. E. Rogers, H.M. Customs; Mr. John Steel, Publicity Manager, Gordon Hotels Limited; the Town Clerk of Newhaven; the Chairman of Newhaven Urban District Council; Mr. J. Talbot Nanson, Chairman, Brighton Publicity Committee; the Town Clerk of Brighton; Colonel P. M. Brooke-Hitching; Mr. G. Ellson; Mr. G. White, Superintendent of Waterguard, Newhaven; Mr. Malcolm, Senior Immigration Officer, Home Office, Newhaven; Mr. J. A. Kay, Editor, *The Railway Gazette;* Mr. D. R. Lamb, Editor, *Modern Transport.*



The Newhaven-Dieppe ss. "Londres" which went into service at the end of last week

Railways and Coal

Below we reproduce a leading article which was published in "The Financial Times" on April 19. *Editorial reference to this article is made on page* 409

Railways & Coal

One of the worst winters we have ever suffered has at last given way to a gentler spring. This is an appropriate time to look back and measure the service the railways gave the community in the trying months behind us. Their record is impressive and deserves acknowledgment. Despite snow, frosts and floods, the vital task of moving coal from the collieries was maintained seven days a week. Despite the shortage of wagons, coal lost because the railways were unable to move it dropped from 617,000 tons in 1945 to 350,000 tons in 1946. All this year movements have been running at an average of over 2,600,000 tons a week, rising in the third week of February to 2,966,000 tons.

Of all this the railways may be proud. But that should not blind us to dangers that still threaten. The majority of people in Britain still, probably, refuse to believe that a breakdown of the railways is practical politics; such things, they believe, simply do not happen. But a few months ago who would have believed that industries would shut down for lack of electricty from coal; but they did. It is worth examining the railways' position again.

Their problems go back, almost all, to a shortage of equipment and a huge backlog of maintenance, due to the war. Of the results, every day brings fresh evidence. Figures of minor accidents, severally unimportant, have wide cumulative significance. Numbers of breakages in rails, for example, though not directly comparable owing to change in classification in 1944,

show a disquieting acceleration of an upward general trend. There were in 1938 only 120; in 1944 there were 225. In 1945 (when some not previously reported were included) there were 345, and in 1946 the total rose to 519. Locomotive failures tell a similar story of the accelerating effects of impaired maintenance. Fractures, hot bearings, failures of joints and boiler tubes and the like accounted for 5,724 locomotive failures in 1938; in 1946 they caused no fewer than 10,152. Locomotives under and awaitng repair increased from 1,556 at the end of 1945 to 1,621 at the end of 1946. Figures for wagons and coaches bear witness to the same tendency.

Materials and Staff

Shortages of materials and shortages of staff are the causes of these increasing difficulties. After their over-use during the war, with subnormal replacements, the track and equipment of the railways should have had more than the customary annual amounts of material put back into them last year. In fact, they had less. In 1938, 221,618 tons of rails were used by the four main-line companies. In 1945 only 165,890 tons were used, and in 1946 182,270. The total of sleepers was 4,500,000 in 1938; in 1945 and 1946 the average was 3,080,000. Pre-war production of wagons was 29,000, and the 1946 figure 28,000. There are plans for the production of 48,000 this year, but the latest figure—for January, 1947, of 2,954—is not very encouraging. And the effects of the fuel crisis have come since then. Even with the priority for steel that the railways have now received it is hard to see how the tracks and the wagons can be restored to the pre-war standard—to say nothing of the new engines needed to replace the present ageing fleet.

If there were some prospect of a respite for the railways, the position might be less intimidating. But before the fuel crisis the amount of freight carried was running well above the pre-war level. The strain is unlikely to be eased this summer; it may well be intensified. Passenger trains can be, and have been, cut. But the Government's programme for rebuilding coal stocks during the summer months, with the five-day week in the mining industry due to begin in May, is bound to increase the demands on the railways. If the miners maintain or increase their output, the railways must either find wagons, staff and engines to move from the pits in five days what they formerly moved in six or seven, or the railwaymen must be prepared to work at pits that are otherwise idle. The first alternative implies a cut in other transport—steel for instance—which itself might be disastrous; the other, self-discipline beyond expectation.

Bad Coal

Coal affects the railways in another way. The poor quality of coal at present produced lowers the tractive power of locomotives per pound consumed. The average calorific value of the coal supplied to the four main-line companies declined from 14,057 Board of Trade units in 1938 to 13,392 in 1946. The railways, further, have to carry an extra amount of dirt in the coal taken to industry, and then carry away the extra ashes that result from its burning. The Electricity Commissioners have pointed out, in fact, that had electricity undertakings been supplied in the war with coal of the pre-war quality, they would have saved the transport of almost a million tons a year in coal alone. A correspondent of *The Financial Times* has recently calculated that, even if the dirt in coal were only 5 per cent.—a wide under-estimate—some 10,000,000 tons of useless rock would be removed to and from industry each year.

These are circumstances in which demands on the railways can be met only by an outstandingly high standard of operating efficiency. That, as even Mr. Barnes admits outside the committee room, depends on the operating staff. And perhaps the most disquieting fact in the whole situation is that the numbers of the operating staff are falling. About 2 per cent., by numbers, have gone since the lifting of the Essential Work Order. Out of the 13,486 people concerned, almost half are footplate staff and cleaners or loco shed staff. Shunters and permanent way staff account for another 2,000. Over the last twenty years, the number of adult women in railway employment has appreciably risen, while the total of male juveniles (*alias* youths) has been steadily falling off. Increased numbers of women cannot supply hands for the vital outdoor work of track maintenance, nor—as yet—can engine drivers be recruited from them. The industry, in fact, is losing ground in trained staff and will feel the effect of the shortage of entrants increasingly in the next few years.

What can be done? First and foremost, traffic must be kept to essential needs. It will be profoundly distasteful, but the message "Is your Journey . . . ?" taken down after the war, will be reappearing this summer. Any freight that can be moved by alternative means must go that way. The sea, the canals and the roads must give all help possible to the railways. Secondly, the railways must work to maximum capacity with the equipment and staff they possess. Incentives come in here, and the railway unions have already asked for them. All the indications, indeed, point to the probability that, soon, all that has been said about the miners will be being said about railwaymen. There will be the same insistence on the indispensability of attracting recruits, if output is not to fall to a crisis level—and the same demand for *differential* "attractions." Trade unionism is strong in both industries. And so the spiral goes on.

Malleable Castings.—We have been notified that Hale & Hale (Tipton) Limited will be showing at the British Industries Fair, among other exhibits, various types of Blackheart malleable castings, and a new special-purpose material known as Permalite. This material, although allied to the malleable family, has a high tensile strength of 33 to 35 tons per sq. in., and has a yield point of 19 to 20 tons per sq. in. Permalite is specially suitable for brake drums, gear blanks, rear-axle components, bushings, etc., and, indeed, for all types of castings which are required to resist shock and abrasion.

Ex-L.M.S.R. Diesel Locomotives.—After 12 to 14 years of arduous service in railway and Government works shunting, two of the first three straight diesel locomotives acquired by the L.M.S.R. in 1933-34 have been re-purchased by the builder, the Hunslet Engine Co. Ltd., for reconditioning. Both have Hunslet gear transmission, and in each case this is in excellent condition. The first of these locomotives had an M.A.N. engine, and the other a Brotherhood-Ricardo sleeve-valve engine. In addition, the third of the first three L.M.S.R. diesel-mechanical locomotives, with a McLaren engine, is also in the Hunslet works for overhaul after three years' continuous shunting duty at an Admiralty depot.

The Organisation of the Pickfords Group

HAY'S WHARF CARTAGE COMPANY, LTD.

PICKFORDS LTD.	Norman E. Box	CARTER PATERSON & CO. LTD.
Arthur Batty Ltd.		Beans Express Ltd.
Benefit Tyre Co. Ltd.		England's & Perrott's
H. Bentley & Co. (Bradford) Ltd.		Express Motor & Body Works Ltd.
Chaplins Ltd.		Herd & Gerner Ltd.
Coulson & Co. Ltd.		Tersons
Crouchers Ltd.		
Express Transport Service (Wellingborough) Ltd.		
Garlick, Burrell & Edwards Ltd.		
A. J. Hewett Ltd.		
Hughes Bros. Ltd.		
Removals & Storage Ltd.		
Shepard Bros. Ltd.		
Swift Parcel Delivery Service Ltd.		
Venn & McPherson Ltd.		

Diagram showing the units of the road transport group headed by the Hay's Wharf Cartage Co. Ltd. This is based on a family tree published in the first issue of "The Driving Mirror," the new staff journal of the group

International Railway Congress Association

The 14th session of the International Railway Congress Association will be held at Lucerne from June 23-28. The proceedings of the congress will be conducted in five sections, each discussing the reports presented on specific questions. We give below a list of the questions and reporters.

Section 1: Way and Works

Sleepers—(*a*) different types; (*b*) maintenance methods; (*c*) financial comparison.

Reporters.—English-speaking countries, Mr. J. C. L. Train, Chief Engineer, London & North Eastern Railway. Other countries, M. O. Leduc, Ingénieur en chef au Service Central des Installations Fixes et de la Construction, French National Railways.

Special Reporter.—M. Van Rijn, Ingénieur en chef au Service de la Voie, Belgian National Railways.

Section 2: Locomotives and Rolling Stock

Lightening the rolling stock. Reduction in the weight of rolling stock (passenger and goods) by: (*a*) choice of the method of construction; (*b*) use of special steels; (*c*) use of alloys.

Reporters.—English-speaking countries, Mr. Eyre A. W. Turbett, Assistant Chief Mechanical Engineer, Southern Railway. Other countries, M. R. Guignard, Ingénieur à la Division de la Traction du 3e Arrondissement, Swiss Federal Railways.

Special Reporter.—M. J. de Aguinaga, Sous-Directeur Général Technique, Spanish National Railways.

Section 3: Working

With reference to passenger traffic, to report on the best policy for organisation of train services from the points of view of frequency and composition of trains. To ensure successful transport at the lowest possible cost, whilst giving passengers reasonable facilities. To consider steam and electric lines, show the extent of steam trains and railcar utilisation on the former, and electric motor coaches and electrically driven trains on the latter, on lines with heavy, average, and light traffic, during and outside rush hours.

Reporters.—English-speaking countries, Mr. R. J. Harvey, Consulting Engineer to the Government of New Zealand. Other countries, M. Lorriot, Ingénieur en chef, Chef de la Division Centrale du Mouvement-Voyageurs, French National Railways.

Special Reporter.—To be appointed at an early date by the Netherlands Railways.

Section 4: General

Interest of railway companies in building houses for their staff of all ranks, or in assisting the building of such houses.

Reporters.—English-speaking countries, Mr. A. P. J. Ball, Estate Manager & Rating Agent, London Midland & Scottish Railway. Other countries, M. E. L. Antonucci, Inspecteur en chef du Service du Personnel et des Affaires Générales, Italian State Railways.

Special Reporter.—To be appointed at an early date by the Portuguese Railways.

Section 5: Light Railways and Colonial Railways

Reporter.—All countries, M. W. A. Vrielynck, Ingénieur Civil, Directeur du Service de la Traction et du Matériel, Belgian National Light Railways Company.

Regimental Plaques for L.M.S.R. Locomotive

At a ceremony at Chester General Station, L.M.S.R., on April 15, plaques of the regimental crest of The Cheshire Regiment were unveiled by Brigadier G. P. Harding, Colonel of Regiment, on locomotive No. 6134 of the "Royal Scot" class.

Sir Robert Burrows, Chairman, L.M.S.R., presided, and was supported by Mr. Richard Summers, Director, Mr. R. A. Riddles, Vice-President, and other officers of the company. Among the guests was Field-Marshal Montgomery, who expressed his appreciation of the work done by the railways during the war, and who afterwards, accompanied by General Sir Brian Horrocks, G.O.C., Western Command, and Brigadier Harding, drove the engine for a short distance.

The engine crew were Driver C. H. Parkinson, Chester, who served with The Cheshire Regiment through the 1914-18 war, and was twice mentioned in dispatches and four times wounded, and Fireman R. Griffiths, Crewe, who won the Military Medal while serving with The Cheshire Regiment during the recent war.

Sir Robert Burrows, Chairman, L.M.S.R., speaking at the unveiling ceremony, and accompanied by Field-Marshal Montgomery and Brigadier G. P. Harding, Colonel of The Cheshire Regiment

Brigadier Harding unveils the nameplate and plaque on "The Cheshire Regiment"

Field-Marshal Montgomery in the cab with Driver Parkinson

Staff and Labour Matters

Railway Professional and Technical Staff

The claim made by the Railway Clerks' Association in connection with the establishment of a national agreement in respect of rates of pay and conditions of service of railway professional and technical staff, on which agreement could not be reached in negotiations with the railway companies, has been referred to the Railway Staff National Tribunal, in accordance with the Scheme of Machinery of Negotiation for the Professional & Technical Staff, for settlement.

The hearing by the Tribunal commenced on April 17, before Sir John Forster, K.C., Chairman of the Tribunal, and Sir Henry Clay and Sir Joseph Hallsworth, members of the Tribunal nominated by the railway companies and the Railway Clerks' Association, respectively. The Tribunal was assisted by Mr. O. W. Cromwell (railway companies) and Mr. P. Morris (R.C.A.) acting as assessors nominated by the parties. The claim of the R.C.A. was presented by Mr. C. N. Gallie, General Secretary of the Association; and Mr. H. J. Comber, Chief Officer for Labour & Establishment, L.M.S.R., appeared for the railway companies.

Questions in Parliament

Train Men Fail to Report

Lieutenant William Shepherd (Bucklow—C.) on February 24 asked the Minister of Transport how many train men had failed to report for duty in the months of November and December, 1946, and how those compared with the pre-war average.

Mr. Alfred Barnes (Minister of Transport): As the answer contains a number of figures I will circulate it.

Later, Mr. Barnes circulated the following statement:—

Particulars of the number of staff who failed to report for duty during November and December, 1946, are as follow:—

	Drivers	Electric train drivers (S.R.)	Firemen	Guards	Total
Rostered staff who failed to report for duty without explanation or leave	7,018	1	31,949	2,957	41,925
Staff who failed to report for duty through sickness ...	85,562	2,774	73,875	47,452	209,663

It is regretted that comparative pre-war figures are not available.

Train Men's Hours of Duty

Mr. J. A. Sparks (Acton—Lab.) on February 24 asked the Minister of Transport (1) how much overtime and Sunday duty had been worked by railway train men during the months of November and December, 1946, who at any time during that period had failed to report for duty; and (2) how many railway train men had been unable to be relieved at the conclusion of their normal hours' turn of duty during the months of November and December, 1946; and what had been the longest period of duty of any train man on any one day and one week in the same period.

Mr. Alfred Barnes: The railway companies advise me that a vast amount of research work would be involved in the preparation of materials to answer these questions. In present circumstances, I do not feel justified in asking them to undertake the work.

Mr. Sparks: Is the Minister aware of the very long hours at present being worked by train men and others concerned in railway operations, particularly during the present fuel crisis?

Mr. Barnes: Yes, I am aware of that, and it is because of those difficulties that I do not think I can direct railway companies to put staff on to a rather big job of this description.

Locomotive Failures

Sir Ralph Glyn (Abingdon—C.) on March 24 asked the Minister of Transport what had been the number of locomotive failures on the railways in 1946 compared with 1938; and what had been the main causes of the failures.

Mr. Alfred Barnes in a written answer stated: There were 10,152 locomotive failures on the railways in 1946, as compared with 5,724 in 1938. The principal causes were fractures, hot bearings, and failures of injectors, joints, boiler tubes, and vacuum brakes.

Oil-Burning Locomotives

Mr. A. J. Champion (Derby Southern—Lab.) on March 31 asked the Minister of Transport if he would give the cost per engine for the conversion from coal to oil burning; the length of time taken to carry out such conversion; and the comparative cost per engine-mile of coal and oil-burning engines.

Mr. Alfred Barnes: I am advised that the best estimate possible at present of the cost of conversion, including the cost of the installations at storage depots, is about £1,850 per locomotive converted. The actual work of conversion of an engine occupies about 10 days, but engines cannot be converted until the necessary storage depots are available. It is not possible to give the comparative cost per engine-mile of coal and oil burning respectively until actual experience has been gained of the running of oil fuel in the various classes of service on which the engines will be engaged.

Broken Rails

Sir Ralph Glyn (Abingdon—C.) on March 24 asked the Minister of Transport what had been the number of broken rails on the main-line railways in 1946, compared with 1938; and what had been the causes of the increased number of breakages in 1946.

Mr. Alfred Barnes stated in a written answer: Due to a change in the basis of classification and reporting of broken rails on the systems of the main-line companies and London Transport, the latest figures comparable with 1938 are those for 1944, namely, 120 and 225, respectively. The figures for 1945 and 1946, on an altered basis which includes certain types of fractures not previously reported, were 345 and 519, respectively. The causes of the continuing deterioration are restricted maintenance and renewals since the beginning of the war, due to shortages of steel and other track components, and of labour.

Conciliation Staff Resignations

Mr. David Jones (The Hartlepools—Lab.) on March 3 asked the Minister of Transport whether he would give the most up-to-date figures of the number and grades, separately, of the permanently-appointed conciliation staffs of the four main-line railway companies who had resigned their employment since the Essential Work Order had been withdrawn from the industry.

Mr. Alfred Barnes in a written answer stated: The number and grades of permanently-appointed conciliation staffs of the four main-line railway companies who, at February 15, 1947, had resigned from their employment since the withdrawal of the Essential Work Order, excluding retirements under age rule or deaths, are as follow:—

Grade	Number
Footplate staff and cleaners	4,881
Locomotive shed staff	1,344
Signalmen	461
Guards	447
Shunters	776
Goods cartage staff	320
Goods handling staff	990
Permanent way staff	1,368
Signal and telegraph staff	195
Other conciliation grades	2,704
	13,486

Signalmen's Responsibility for Priority of Trains

Mr. J. A. Sparks (Acton—Lab.) on March 17 asked the Minister of Transport, in view of the delays to, and slow speeds of, freight trains arising from the present system of control of railway operations, if he would restore to signalmen a greater measure of responsibility for determining the priority of passage of trains on running lines.

Mr. G. R. Strauss (Parliamentary Secretary to the Minister of Transport) stated in a written answer: The normal method of determining the priority is through the signalmen, who are provided, where necessary, with information laying down the margins of time necessary for running slower-moving trains in front of passenger trains. Instructions are given to the signalmen when abnormal conditions necessitate the taking of exceptional measures to determine the priority of trains, in order to make proper allowance for conditions further afield not known to the individual signalman.

Engine Mileage

Mr. J. A. Sparks (Acton—Lab.) on March 31 asked the Minister of Transport if he would state the number of engine-miles run on passenger trains, merchandise trains, and coal-class trains by the four main-line railway companies for each week in 1947 to the nearest convenient date; and the number of assisting, not required, and light-engine-miles run in each week for the same period.

Mr. Alfred Barnes: The latest figures of engine-miles run are those for the four weeks ended December 28, 1946, which I am circulating. The other particulars desired by Mr. Sparks are not available.

Later, Mr. Barnes circulated the following figures:—

	Number of Engine-Miles Run			
	Coaching	Freight	Departmental	Total
G.W.R. ...	3,399,370	3,406,243	187,003	6,992,616
L.N.E.R. ...	5,423,183	6,174,368	465,205	12,062,756
L.M.S.R. ...	7,233,966	7,573,438	523,595	15,330,999
Southern Railway	4,524,481	1,180,705	123,719	5,828,905
	20,581,000	18,334,754	1,299,522	40,215,276

L.P.T.B. Advertisement Charges

Mr. Anthony Nutting (Melton—C.) on February 24 asked the Minister of Transport whether, in view of the recent increase in fares, he would advise the L.P.T.B. to increase its advertisement charges; and whether, by so increasing the income of the Board, it would be possible to revert to the level of fares existing before the war.

Mr. Alfred Barnes: The London Passenger Transport Board's advertisement rates have been increased in recent months and the Board is of the opinion that a further

increase would not add substantially, if at all, to its revenue.

Mr. Nutting: Is it not a fact that the income of the London Passenger Transport Board from advertisements is about £1 million a year? Further, would not firms be willing nowadays to pay increased advertisement charges, and would not such an increase relieve the harassed Londoners from paying increased fares?

Mr. Barnes: I am not prepared to advise any administration to increase its prices to its customers if it considers this is unnecessary.

Sir Waldron Smithers (Orpington—C.): Is it not a fact that one of the reasons for the increased running costs of the London Passenger Board is the "closed shop"?

Brigadier F. Medlicott (Norfolk Eastern —Lib. Nat.): Is it not a fact that the advertisement rates are already very high and have driven off London theatre advertisements?

Mr. Barnes: No, that is a different point. That was an adjustment in the prevailing rates.

British Guiana and Ceylon Railways

Mr. L. D. Gammans (Hornsey—C.) on February 26 asked the Secretary of State for the Colonies what had been the loss on the State railways in British Guiana and Ceylon, respectively, for the last seven years, and if such loss included amortisation on capital.

Mr. A. Creech Jones (Secretary of State for the Colonies) in a written answer stated: Complete figures are available only up to 1945.

During the seven years, 1939 to 1945, the accumulated loss on the British Guiana railway services was £433,333, after making some, but not complete, provision for amortisation on capital. The revenue position in 1946 is understood to show a distinct improvement over previous years. As regards Ceylon, although some individual years showed a loss after charging amortisation, there was no loss over the period as a whole.

Leakage Testing of Automatic Vacuum Brakes

(*Concluded from page* 419)

ensures that immediately after the instrument is isolated from the evacuating source, the leak reservoir is left momentarily in communication with the system. By this precaution, the reservoir and the system under test are both brought to exactly the same vacuum before finally being separately isolated.

The red and black gauge pointers are thus originally coincident. As the vacuum falls, they move at different rates, showing at a glance whether the brake system is leaking at more or less than the permissible rate. The actual rate of either leakage can be timed, and an occasional check is desirable to confirm that the standard leak rate is being maintained. The compressed cotton-wool filter and the capillary tube are both easily renewable

The original experimental apparatus, weighing 35 lb., was undesirably heavy as a routine inspection instrument, and a more compact model in which the weight has been reduced to 16 lb. is shown at the bottom of page 419, where the portion of the train on the right is under test.

This instrument was devised by Mr. J. O. Cowburn, formerly Engineering Research Assistant, Derby, who, as was reported in our march 21 issue, has been awarded the Herbert Jackson Prize, 1946, for this particular work.

Notes and News

Assistant to Transport Officer Required.—An assistant to the transport officer of a large industrial undertaking is required. Applicants should not be more than 35 years of age. See Official Notices on page 431.

Temporary Engineering Assistants Required for L.P.T.B.—Temporary engineering assistants are required by the London Passenger Transport Board for its headquarters drawing office, Department of Chief Engineer. See Official Notices on page 431.

Barsi Light Railway Dividend.—The directors of the Barsi Light Railway Co. Ltd. have declared a dividend on the ordinary stock for the half-year ended September 30, 1946, of 3 per cent. actual. Payment will be made on May 2, less income tax at 9s. in the £.

Troop Train Mined in Palestine.—A troop train from Egypt, travelling towards Haifa, was damaged near Rehovoth on April 22 by explosives which had been placed under the track. The explosion occurred under the fourth vehicle, blowing off the roof and causing the next coach to overturn. The three rear coaches were telescoped. Five soldiers and 3 civilians were killed, and 41 injured.

Draughtsman and Instructor Required.—A draughtsman and instructor, age between 25 and 30, is required by the Nigerian Government Railway for one tour of 18 to 24 months with prospect of permanency. Among other things candidates must have served an apprenticeship as a locomotive engineer with a British railway (with locomotive running section experience). See Official Notices on page 431.

Hunslet Tank Engines for West Africa.—The delivery of 15 tank engines (0-8-OT) to the Crown Agents for the Colonies recently has been completed by the Hunslet Engine Co. Ltd. Eleven of these locomotives (gauge, 3 ft. 6 in.; weight, 50 tons; wheels, 42¾ in.; cylinders, 18 in. × 23 in.; boiler pressure, 180 lb.) have been supplied to the Nigerian Government Railway, and the remainder to the Gold Coast Railway.

Macrome Limited: Change of Address.—As from April 28, the head office of Macrome Limited, makers of cutting and hand tools, will be at Aldersley, Wolverhampton (Telephone: Tettenhall 52001). Even as this move is being made, already arrangements are well advanced to extend the new works by 50 per cent., which the firm considers will be necessary to enable it to handle efficiently the many new developments in hand. During the first full post-war trading year, output was greater than the peak year of the war, and export trade now represents a substantial part of the Macrome business.

Luncheon to Mr. Edward Huskisson.—A committee has been formed to arrange a luncheon to be given in honour of Mr. Edward Huskisson, Director and General Manager of Thos. Cook & Son Limited, on the occasion of his retirement from the latter position. The luncheon will be held at the Savoy Hotel, London, on May 7. The cost of each ticket will be 30s. (which amount will include a contribution towards a suitable presentation), and applications, with remittances, should be sent as soon as possible to Mr. Walter Pontin, The Anchorage, Sole Farm Road, Great Bookham, near Leatherhead, Surrey. The committee consists of Messrs. D. H. Drakeford, Shirley H. James, J. Metcalfe, Walter Pontin, B. H. Russell, and R. Waugh.

Institution of Locomotive Engineers Luncheon.—The Institution of Locomotive Engineers has arranged to hold a luncheon on May 15, at the Dorchester Hotel, London, W.1.

Cost-of-Living Index.—At March 1 last, the official cost-of-living index figure was 104 points above the level of July, 1914, compared with 103 points at February 1 last. At March 1, 1939, the cost-of-living index was 53 points above July, 1914.

L.M.S.R. Orders for Emergency Lighting Plant.—The Chloride Electrical Storage Co. Ltd., Clifton Junction, near Manchester, has received orders from the L.M.S.R. for Keepalite automatic emergency lighting equipment to be installed in hotels. The hotels to be equipped are the Crewe Arms Hotel, Crewe; and the Exchange Hotel, Liverpool.

Locomotives for South African Royal Train.—The three locomotives shown working the South African Royal Train on page 394 of our April 18 issue were of Class "19D," and not Class "190," as shown by a typographical error in the caption. Locomotives of the "19D" class have been built for the South African Railways by Robert Stephenson & Hawthorns Limited, Darlington.

London Transport Magazine.—The first number of the *London Transport Magazine*, dated April, 1947, replaces the board's former staff publication, *Pennyfare*. It is enlarged considerably compared with its predecessor, and opens with a message from Lord Ashfield, Chairman of the board, expressing the hope that its articles and illustrations will enable the 93,000 members of the London Transport staff to learn more about each other's work and the diversified services they offer to the public. The first number inaugurates a series of articles on the services of the board, No. 1 of which, by Mr. G. F. Sinclair, discusses the plans for development of road transport.

Welding Exhibits at Birmingham.—We have been notified that Murex Welding Processes Limited will be showing a wide range of electric arc welding plant and electrodes at the British Industries Fair. These exhibits will include a mobile 400-amp. diesel-engine driven set, designed to function satisfactorily at extremes of temperature and altitude, and a 300-amp. motor generator set complete on trolley and fitted with the new Murex remote-control regulator. There will be electrodes for welding mild steel, high-tensile steels, cast iron, heat resisting steels, etc., and examples of welded fabrication will be demonstrated on the stand, including the recently developed "PV" electrode for welding deep-groove butt welds in thick mild steel.

Saunders Diaphragm Valves.—At the British Industries Fair next month the Saunders Valve Co. Ltd. will demonstrate the readiness with which the standard Saunders diaphragm valve can be applied to a wide variety of uses. A feature of this valve, diaphragms for which are supplied in seven grades to resist corrosion or erosion and to suit pressures or temperatures other than normal, is the way in which the flexible diaphragm isolates the mechanism from the fluid, thus preventing contamination from the lubricated parts and at the same time preserving that machinery for longer

life. Quick-acting models will be shown, and we have been informed that the firm also will be exhibiting a recent development in the form of a glandless plug cock, and a range of Safran centrifugal pumps.

Five-Day Week for Hunslet Engine Company.—The five-day week has been adopted by the Hunslet Engine Co. Ltd., and henceforth the works and offices at Jack Lane, Leeds, 10, will be closed on Saturdays.

Seat Reservations Suspended.—The Minister of Transport announced in the House of Commons on April 21 that the reservation of seats on trains, except boat trains, would be discontinued with the introduction of summer timetables on June 16.

Road Accidents in February, 1947.—The return issued by the Ministry of Transport of the number of persons reported to have died, or to have been injured, as a result of road accidents in Great Britain during the month of February last, shows 223 deaths (compared with 371 in February, 1946), 1,355 seriously injured (compared with 2,304 in February, 1946), and 5,570 slightly injured (compared with 7,599).

Prizes for L.M.S.R. Best-Kept Stations.—Nearly 350 L.M.S.R. stations in England and Wales have entered for the company's "Best-Kept Stations" competition, revived this year for the first time since the war. Stations will be judged not only on the cultivation of flowers, plants, and shrubs, but also on the general cleanliness and tidiness of platforms, waiting rooms, and offices, and on the neatness of timetable, poster, and notice displays. A competition on similar lines is held for L.M.S.R. stations in Scotland.

Southern Railway First Aid Competition Awards.—The final competition for Southern Railway first aid teams was held at the Borough Polytechnic, London, S.E.1, on April 11, when 12 teams took part. The winning team was Horsham, with 426½ marks out of a possible 600, and the runners-up were the Waterloo No. 1 team, with 404 marks. The judges were Dr. M. M. Scott, London, Dr. F. H. Stuttaford, Brighton, and Dr. W. L. M. Bigby, Southampton. In the photograph reproduced below, Lady Missenden, wife of Sir Eustace Missenden, General Manager, Southern Railway, is seen presenting the Challenge Shield to Mr. W. Jupp, captain of the Horsham team.

Loudspeakers at Fenchurch Street Station, L.N.E.R.—The L.N.E.R. is to provide loudspeakers at Fenchurch Street Station, which will bring the total number of L.N.E.R. stations provided with public address systems to 21.

Record Sugar-Beet Crop Traffic.—During the 1946/47 season East Anglia produced considerably more sugar beet than could be absorbed by local factories, and a very large tonnage was directed to factories in Lincolnshire and the Midlands. The L.N.E.R. carried 1,179,063 tons of beet in 126,882 wagon-loads to the 18 beet-sugar factories.

L.M.S.R. Bridge Rebuilding at Long Buckby.—A steelwork contract has been placed by the L.M.S.R. with Francis Morton & Co. Ltd., Hamilton Ironworks, Garston, Liverpool, for the reconstruction of the superstructure of the bridge at Long Buckby which carries the Northampton—Rugby section of the main line over the Daventry road.

G. D. Peters & Co. Ltd.—The report for 1946 shows that net profit, after income tax, amounted to £74,564, an increase of £35,984. A transfer of £5,000 is made again to staff reserve, and £50,000 is placed to general reserve. Last year £20,000 was carried to dividend equalisation reserve. The dividend and bonus distribution for the year is again 17 per cent., and the carry-forward of £43,691 compares with £38,735 in 1945.

Coal for Britain from South Africa.—Mr. Sidney Waterson, Minister of Economic Development & Mines in South Africa, suggested recently that a representative should be sent from Great Britain to the Union to explore the possibilities of obtaining coal. South Africa could supply coal to Britain, but only if some thousands of wagons now on order in Britain and Canada could be sent to carry it to the ports. If the British Government thought that the matter was sufficiently important, and would hasten the delivery of the wagons, South Africa would be most anxious to assist. Mr. Waterson thought that South Africa would "be doing pretty well" to supply 500,000 tons a month, including bunkering, whereas Britain consumed that amount every day.

Thos. W. Ward and Birchley Rolling Mills.—Thos. W. Ward Limited, Albion Works, Sheffield, has purchased the whole of the share capital of Birchley Rolling

Southern Railway Ambulance Competition

Lady Missenden, wife of Sir Eustace Missenden, General Manager, Southern Railway, congratulating Mr. W. Jupp, captain of the Horsham Ambulance team

British and Irish Railway Stocks and Shares

Stocks	Highest 1946	Lowest 1946	Prices Apr. 22, 1947	Prices Rise Fall
G.W.R.				
Cons. Ord.	61¼	54¼	55	—
5% Con. Pref. ...	126½	107	121½	—
5% Red. Pref. (1950)	106½	102½	10.½	—
5% Rt. Charge ...	140½	122½	135½	—
5% Cons. Guar. ...	137½	118½	132½	—
4% Deb.	129½	106	124½	—
4½% Deb.	129½	107	124½	—
4½% Deb.	130½	114	125½	—
5% Deb.	142½	125	137½	—
2½% Deb.	95½	81½	92½	—
L.M.S.R.				
Ord.	30½	26½	27	— ¼
4% Pref. (1923) ...	64	52½	59½	—
4% Pref.	86	75½	80½	—
5% Red. Pref. (1955)	105½	97	101½	—
4% Guar.	108½	100	102½	—
4% Deb.	120	103	113½	—
5% Red. Deb. (1952)	108½	105½	105½	—
L.N.E.R.				
5% Pref. Ord. ...	7	5	6⅜	—
Def. Ord.	3½	2½	3½	—
4% First Pref. ...	59½	50½	54½	—
4% Second Pref. ...	29½	25¾	27	—
5% Red. Pref. (1955)	104	97	98½	—
4% First Guar. ...	107	98	101½	—
4% Second Guar. ...	101	90	95½	—
3% Deb.	104	87½	98½	—
4% Deb.	119½	102½	113½	—
4½% Sinking Fund Red. Deb.	107½	101½	103½	—
SOUTHERN				
Pref. Ord.	79½	70	73½	—
Def. Ord.	24	19½	22	— ¼
5% Pref.	125½	107	120½	—
5% Red. Pref. (1964)	115½	106½	111½	—
5% Guar. Pref. ...	137½	119	132½	—
5% Red. Guar. Pref. (1957)	115½	107½	111½	—
4% Deb.	129½	105½	124½	—
5% Deb.	159½	125½	135½	—
4% Red. Deb. (1962-67)	113½	104½	110½	—
4% Red. Deb. (1970-80)	115½	104½	111½	—
FORTH BRIDGE				
4% Deb.	109	103	103½	—
4% Guar.	105	102	99½	—
L.P.T.B.				
4½ "A"	133½	120½	128½	—
5% "A"	142½	130½	137½	—
3% Guar. (1967-72) ...	108	98½	104½	—
5% "B"	128½	117½	124½	—
"C"	64½	56½	62½	—
MERSEY				
Ord.	34	30	34½	—
3% Perp. Pref. ...	76	69	72½	—
4% Perp. Deb. ...	117½	103	111	—
3% Perp. Deb. ...	98	81	92½	—
IRELAND*				
BELFAST & C.D.				
Ord.	8½	6	7½	—
G. NORTHERN				
Ord.	41¾	30½	28½	— 3
Pref.	63⅜	52	50½	—
Guar.	97½	78½	90	—
Deb.	107	97½	104½	—
IRISH TRANSPORT				
Common	19/2½	16/9	15/9	+ 9d
3% Deb.	107	100	104½	—

* Latest available quotation

OFFICIAL NOTICES

Crown Agents for the Colonies

APPLICATIONS from qualified candidates are invited for the following post:—

Draughtsman and Instructor required by the Nigerian Government Railway for one tour of 18 to 24 months with prospect of permanency. Salary £450 a year for first three years then £510 rising to £720 a year, plus expatriation pay, which on salary of £450 is £150 a year. Commencing salary according to age and war service. Outfit allowance £60. Free passages. Candidates, preferably single and between 25 and 30, must have served an apprenticeship as a Locomotive Engineer with a British Railway (with Locomotive Running Section experience); have had at least two years' subsequent experience in a Locomotive Drawing Office on the design and detail of locomotive parts; and must be Graduates of the Institution of Mechanical Engineers, or hold equivalent qualification. Training in the Carriage and Wagon Indoor Section and Progress Office an advantage. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/15975 on both letter and envelope.

RAILWAY SUPPLY FIRM, LONDON, has vacancy for Commercial Engineer. Railway engineering experience desirable. Age 30-40. Apply Box 94, *The Railway Gazette*, 33, Tothill Street, Westminster, S.W.1.

REQUIRED—Assistant to Transport Officer of large Industrial Undertaking. Applicants should submit full particulars of qualifications, experience, and salary required, and should not be more than 35 years of age.—Box 100, *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

THE RAILWAY HANDBOOK provides the railway student with a collection of useful statistics and information relating to the railways of Great Britain and Ireland. In addition, in matters of international interest, such as speed and electrification progress, the book extends its scope to cover the whole world in order to present a complete picture of these increasingly-important developments. 120 pp. Dy. 8vo. Paper covers. *Price* 5*s*. *By post* 5*s*. 3*d*.

LONDON PASSENGER TRANSPORT BOARD. Applications are invited for posts as Temporary Engineering Assistants for Headquarters Drawing Office, Department of Chief Engineer. Applicants should have had sound theoretical training and some practical experience for (*a*) the design and setting out of permanent way junction work and (*b*) the design of steel and reinforced concrete bridges and structures. Applicants should be Associate Members or Students of an Engineering Institution. Salary range £300-£550 per annum; commencing salary according to qualifications and experience.

The successful candidates will be required to pass a medical examination. Canvassing, either directly or indirectly, will disqualify.

Applications giving full particulars of education, business and other experience, professional or other qualifications, present remuneration and age, should be sent, not later than May 24, 1947, to the STAFF OFFICER (ER/E423), LONDON PASSENGER TRANSPORT BOARD, 55, Broadway, S.W.1.

PLASTICS IN RAILWAY ENGINEERING. By T. Lovatt Williams and D. Warburton Brown. 1*s*. *By post* 1*s*. 2*d*.

Mills Limited, Oldbury. Messrs. H. W. Secker (who will be Chairman & Managing Director), C. Leslie Fry, W. W. Hickman, R. B. Trotman, S. J. Dyal, A. J. Wainford, and P. T. Ward have been appointed Directors of the latter company, which will continue to operate under its present name.

Dinam Wagons Limited.—At a recent extraordinary general meeting of Dinam Wagons Limited a special resolution was passed to the effect that the company be wound up voluntarily, and that Mr. L. D. Williams, Chartered Accountant, of 11, Bute Crescent, Cardiff, be appointed liquidator.

Strike at Bishopsgate Goods Station, L.N.E.R.—A strike of 700 cartage workers at Bishopsgate, L.N.E.R., broke out on April 15 in protest against the appointment of a new chief cartage clerk. A sympathy strike by 64 carters at Liverpool Street resulted in two early-morning newspaper trains being cancelled on April 21. Later, more men at Bishopsgate came out, but the strike was called off on April 22.

B.I. Callender's Cables Works Holiday Closing.—British Insulated Callender's Cables Limited states that, in connection with annual holidays this year, its works (except Erith Works, which will not close, as holidays will be staggered) will be closed for the receipt of goods during the following periods (all dates inclusive):—Anchor Works, Leigh, July 5 to 12; Prescot Works and Helsby Works, July 26 to August 4; Willenhall Foundry, Willenhall, Staffordshire, June 28 to July 7. Arrangements have been made for a skeleton staff to be on duty to deal with customers' urgent requirements.

Whitby Tribute to L.N.E.R. Work in Blizzards.—Whitby suffered severely during the heavy snowfalls in February and March, and the L.N.E.R. branches connecting with the town were blocked for the periods shown below:—

Malton—Whitby ...	February 10, 11, and 26.
Battersby—Whitby ...	February 6-11; February 22; February 26-March 2; and March 13-18.
West Cliff to Middlesbrough (*via* Sandsend)	February 3-12; February 22; February 26-March 2; and March 13-16.
Whitby—Scarborough	February 11-17; February 24; March 5; March 13-17; and again on March 26 by a landslide.

Roads also were blocked, and Whitby was in danger of being completely isolated. The Whitby Rural District Council has placed on record its appreciation of the work done by the L.N.E.R. in keeping contact with the town and thus making it possible for supplies of food and fuel to be sent there. A letter from the Clerk to the Council to the L.N.E.R. representatives at York says that particular praise is due to the railwaymen who kept open the Malton-Whitby line, which made it possible for Whitby to receive supplies of food and also kept the town in touch with other parts of the country by letters and newspapers. The men engaged in opening the Whitby-Scarborough, and the Whitby-Middlesbrough lines, both on the coast route and *via* Battersby, need special mention having regard to the exposed position of these railways.

Simmonds Aerocessories Limited.—In 1938 the Simmonds group arranged for the construction of a large modern factory outside Cardiff. Since then, the factory has been increased in size several times, until during the war some 4,000 workers were employed. The group recently reached the conclusion that for its light industrial manufacture, South Wales in present conditions is as suitable an area as London, and has closed the Great West Road works, concentrating its light manufacturing at the Treforest Works. On February 1, therefore, the company moved to Treforest both its head office organisation and its research departments, formerly at the Great West Road. The London office, at 2 and 3, Norfolk Street, Strand, and the regional offices are unaffected by this change, but the head office address is now Simmonds Aerocessories Limited, Treforest, near Pontypridd, Glamorgan.

Institute of Transport Examination Regulations.—The Council of the Institute of Transport has approved a revised form of the regulation governing the submission of a thesis instead of the associate membership examination; only graduates and associates are eligible to submit theses. One amendment shows the fee to be £5 5s.; and the qualities looked for in a thesis are re-defined as follow: "A thesis must show practical and theoretical knowledge of transport; it may be either a record of research or a critical treatment of some aspect of existing practice or available information, and must contribute to the knowledge of transport." The Council has decided that no further applications for special treatment in connection with the examinations, on the grounds of interruption of studies by war service, shall be considered after September 30, 1947. It has been arranged that after that date, however, those taking both parts of the graduateship examination at one sitting and failing in one subject, may, at the discretion of the Examinations Committee, qualify for a pass in the whole examination the following year, by satisfying the examiners in that one subject.

South Wales Steel Plan Approved.—The Government has accepted the recommendations of the Iron & Steel Board that the £50 million scheme for modernising the South Wales tinplate and sheet steel industry should be carried out. The scheme was outlined in our issue of March 7. Government approval for the proposals was announced by Mr. J. Wilmot, Minister of Supply, in the House of Commons on April 21.

Beira Railway Co. Ltd.—A statement by the Chairman, Mr. Arthur E. Hadley, which was circulated with the report and accounts of the Beira Railway Co. Ltd. at the annual general meeting on March 24, said that there had been no arrears in maintenance in the year under review, and the company had, in fact, been able to make a small start in catching up on past arrears. Profit for the year amounted to £88,859, and after various adjustments, there remained a balance of £126,860. The directors recommended that a dividend of 2s. 6d. per share, less income tax, be paid; a transfer of £15,000 to dividend equalisation account; and the carrying forward of £39,671 to the next account. The Portuguese Government did not exercise its right to expropriate the company in 1946, and this right would not arise again for another 10 years. Prospects for the current year were good, and although a special allowance in respect of specially rated through traffics had been discontinued, gross receipts for the first three months showed an increase of £54,900 over the corresponding period last year.

Forthcoming Meetings

April 30 (*Wed.*).—The Institution of Railway Signal Engineers, at the Institution of Electrical Engineers, Savoy Place, Victoria Embankment, London, W.C.2. 6 p.m. "The Co-relation of Signal and Permanent Way Work," by Mr. J. H. Fraser.

May 1 (*Thu.*).—The Institution of Mechanical Engineers (Graduates' Section, London), Storey's Gate, St. James's Park, London, S.W.1. 6.30 p.m. "Statistical Quality Control," by Mr. E. A. Ritchie, G.I.Mech.E.

Railway Stock Market

Business in stock markets generally was on moderate lines, but with buying interest predominating, values have moved higher in most sections. Industrials provided numerous good features; steady demand continued for shares of companies which seem likely to benefit considerably from the abolition of E.P.T. as from the beginning of this year. The complications and uncertainties arising from the increase in the profits tax on distributed profits, and the special tax on the bonus element in capital issues, produced a good deal of uncertainty, but have had little effect on Stock Exchange business; the doubling of the stamp duty, it appears, will also have little restrictive influence.

There has been widespread demand for shares of companies which in recent years have been large E.P.T. payers; buyers seemed to give little attention to the fact that E.P.T. abolition benefits will depend on trading profits being maintained. Gradually, however, demands appeared to become a good deal more selective, and centred mainly on shares of companies which seem likely to remain active in supplying the needs of the home and export markets. Imperial Chemical, Turner & Newall, and other industrial leaders were prominent, while elsewhere Dunlop Rubber and Babcock & Wilcox moved higher pending the dividend announcements. Iron and steels improved, including Guest Keen, United Steel, and other shares of companies in this section which have been apparently substantial payers of E.P.T. in recent years. Vickers eased (although the profit and dividend increases were up to best expectations), the full results and Chairman's statement being awaited for news whether the writing up of the 10s. ordinary units to their original £1 level may have to be postponed because of the bonus tax.

There has been a steady tendency in home rails, with buyers somewhat more in evidence, although junior stocks were inclined to be affected by uncertainty whether the increased profits tax will be payable in respect of the dividends that fall due before the exchange into British Transport stock. Fractional movements were recorded among prior charge and senior preference stocks, which were inclined to move with British Funds. As the main factor governing home rails is, of course, the nationalisation "take-over" terms, market sentiment has been unaffected by the question of the extent of the decrease in gross receipts, and Mr. Barnes' impending decision as to a further increase in rates and charges.

Compared with a week ago, Great Western ordinary has eased from 55¼ to 55, and the 5 per cent. preference was 121. L.M.S.R. ordinary eased to 27, and the 1923 preference to 59; while L.N.E.R. first preference at 54 was ½ below the level of a week ago, although the second preference remained at 27. Southern preferred was maintained at 73, but the deferred eased from 22¼ to 22, although the guaranteed preference strengthened to 132½. London Transport "C" was unchanged at 62, but the senior stocks attracted rather more attention, the 4½ per cent. "A" further improving from 128 to 129, the 5 per cent. "A" from 137 to 138, while the 5 per cent. "B" held last week's improvement to 124.

Central London Assented stock at 94¼ was virtually unaffected by clarification of the position under nationalisation. It is pointed out that it would be possible to value home railway stocks on a sounder basis if official information were available as to the redemption dates of the proposed new British Transport stock. The market is hopeful that this will be forthcoming shortly, and not delayed until the exchange from home rails into British Transport stock is to be effected. It is felt, however, in some quarters that the redemption dates of British Transport stock may have such an important bearing on Mr. Dalton's cheaper money plans, that no early announcement of redemption dates may be made.

The foreign railway market has been less active, although Leopoldina and Great Western of Brazil both have fluctuated sharply following conflicting views on the outcome of the talks regarding Brazil's sterling balances. San Paulo developed renewed strength at 187, the decision regarding the payment for ancillary interests being expected shortly. Argentine rails were inclined to ease on the decision to establish an independent panel to consider the "share-out" terms between the different categories of stock and loan capital. Later, however, prices turned firmer. It is realised that the "share out" is a very complicated matter, and most likely to be decided in a fair and equitable manner by the machinery now adopted.

MADRAS RAILWAY ANNUITIES.—It was notified in *The London Gazette* of April 18 last that a total sum of £7,165,424 6s. 9d. is now invested for the purpose of providing a sinking fund in respect of the annuities class "B."

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1945 6	No. of Week	Aggregate traffics to date: Totals 1946 7	Aggregate traffics to date: Totals 1945 6	Aggregate traffics to date: Increase or decrease	Shares or Stock	Prices: Highest 1945	Prices: Lowest 1945	Prices: Apr. 22, 1947
				£	£		£	£	£				
South & Central America	Antofagasta	834	13.4.47	40,440	+ 6,280	15	557,320	496,880	+ 60,440	Ord. Stk.	12	8¼	15
	Arg. N.E.	753	12.4.47	ps.360,200	+ps.39,600	41	ps.13,148,400	ps.12,104,900	+ps.1,043,500	,,	10	5½	15
	Bolivar	174	Mar., 1947	$111,635	— $12,317	13	$340,312	$356,403	— $16,091	6 p.c. Deb.	8½	5½	7½
	Brazil	—	—	—	—	—	—	—	—	Bonds	25	17	36
	B.A. Pacific	2,771	12.4.47	ps.2,950,000	+ps.518,000	41	ps.98,077,000	ps 93,493,000	+ps.4,584,000	Ord. Stk.	7	5	10
	B.A.G.S.	5,080	12.4.47	ps.3,981,000	+ps.306,000	41	ps.149,538,000	ps.146,707,000	+ ps.2,831.000	Ord. Stk.	13¾	10½	19
	B.A. Western	1,924	12.4.47	ps.1,378,000	+ps.180,000	41	ps.53,889,000	ps.49,281,000	+ ps.4,608,000	,,	12¾	9½	28½
	Cent. Argentine	3,700	12.4.47	ps.3,283,300	+ps.144,510	41	ps.132,544,880	ps.129,559,105	+ ps.2,985,775	,,	9¾	7	21
	Do.	—	—	—	—	—	—	—	—	Dfd.	5	2⅞	17½
	Cent. Uruguay	970	12.4.47	33,940	— 14,679	41	1,520,174	1,607,016	— 86,842	Ord. Stk.	7¼	4	27½
	Costa Rica	262	Feb., 1947	30,030	+ 3,118	35	220,372	222,104	— 1,732	Stk.	16½	13	12½
	Dorada	70	Mar., 1947	29,200	+ 3,039	13	89,500	85,975	+ 3,525	1 Mt. Deb.	103	102	106½
	Entre Rios	808	12.4.47	ps.437,000	+ ps.8,200	41	ps.17,676,000	ps.17,443,600	+ ps.232,400	Ord. Stk.	7½	4½	8
	G.W. of Brazil	1,030	12.4.47	34,500	+ 8,400	15	558,800	466,900	+ 91,900	Ord. Stk.	30/-	23/6	95/-
	Inter. Ctl. Amer.	794	Feb., 1947	$1,145,853	+ $246,184	8	$2,327,261	$1,924,216	+ $403,045	—	—	—	—
	La Guaira	22¾	Mar., 1947	$130,008	+ $18,378	13	$355,075	$347,692	+ $7,383	5 p.c. Deb.	78	70	77½
	Leopoldina	1,9 8	12.4.47	68,503	+ 13,879	15	956,029	837,126	+ 118,903	Ord. Stk.	4½	3½	20
	Mexican	483	31.5.46	ps.1,464,000	+ps.459,100	22	ps.7,706,200	ps.13,441,600	+ps.5,220,200	Ord. Stk.	¼	¼	¼
	Midland Uruguay	319	Mar., 1947	15,947	— 57	39	149,262	164,290	— 15,028	—	—	—	—
	Nitrate	382	15.4.47	9,469	+ 901	15	58,795	65,770	— 6,975	Ord. Sh.	75/6	67/6	81/3
	N.W. of Uruguay	113	Feb., 1947	3,067	— 811	35	42,607	44,696	— 2,089	—	—	—	—
	Paraguay Cent.	274	11.4.47	₲62,054	— ₲848	41	₲2,591,768	₲2,473,195	+ ₲118,573	Pr.Li.Stk.	79¾	77	60½
	Peru Corp.	1,059	Mar., 1947	155,079	+ 36,693	39	1,356,614	1,252,842	+ 103,772	Pref.	10⅜	7¾	11¼
	Salvador	100	Feb., 1947	c244,000	+ c11,000	35	c1,129,000	c1,080,000	+ c49,000	—	—	—	—
	San Paulo	153½	—	—	—	—	—	—	—	Ord. Stk.	60¾	50½	189½
	Taltal	156	Mar., 1947	2,925	— 605	39	37,630	28,020	+ 9,610	Ord. Sh.	17/-	10.6	22/6
	United of Havana	1,301	12.4.47	113,970	+ 17,508	41	2,558,487	2,376,144	+ 182,343	Ord. Stk.	3	1	4
	Uruguay Northern	73	Mar., 1947	1,307	— 247	39	11,386	15,768	— 4,382	—	—	—	—
Canada	Canadian National	23,535	Feb., 1947	7,767,000	+ 553,250	8	15,981,500	14,939,000	+ 1,042,500	—	—	—	—
	Canadian Pacific	17,037	14.4.47	1,495,250	+ 228,250	15	20,819,250	20,355,250	+ 464,000	Ord. Stk.	24	14⅜	17½
Various	Barsi Light†	202	Jan., 1947	21,292	— 1,492	43	225,870	225,120	+ 750	Ord. Stk.	131	123	108xd
	Beira	204	Jan., 1947	86,519	+ 14,290	16	355,672	286,482	+ 69,190	—	—	—	—
	Egyptian Delta	607	28.2.47	13,965	+ 657	48	618,441	578,317	+ 40,124	Prf. Sh.	10	8⅛	6½
	Manila	—	—	—	—	—	—	—	—	B. Deb.	71	55½	72½
	Mid. of W. Australia	277	Feb., 1947	15,318	— 540	34	130,669	134,118	— 3,449	Inc. Deb.	97½	85	65
	Nigeria	1,900	Feb., 1947	353,073	+ 2,154	46	4,193,473	3,153,983	+ 1,039,490	—	—	—	—
	Rhodesia	2,445	Jan., 1947	557,398	+ 66,020	16	2,227,423	2,009,976	+ 217,457	—	—	—	—
	South African	13,323	22.3.47	1,165,876	+ 132,580	51	59,295,671	52,084,859	+ 7,210,812	—	—	—	—
	Victoria	4,774	Nov., 1946	1,204,525	— 39,782	—	—	—	—	—	—	—	—

† Receipts are calculated @ 1s. 6d. to the rupee